

SERVICE MANUAL

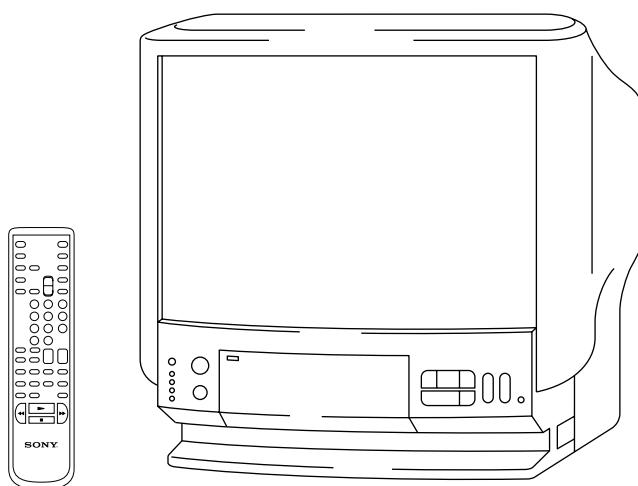
TE-1 CHASSIS

<u>MODEL</u>	<u>COMMANDER</u>	<u>DEST.</u>	<u>CHASSIS NO.</u>	<u>MODEL</u>	<u>COMMANDER</u>	<u>DEST.</u>	<u>CHASSIS NO.</u>
<i>KV-21V4A</i>	<i>RM-C801</i>	<i>Italian</i>	<i>SCC-J09F-A</i>	<i>KV-21V4E</i>	<i>RM-C801</i>	<i>Spanish</i>	<i>SCC-J12D-A</i>
<i>KV-21V4B</i>	<i>RM-C803</i>	<i>French</i>	<i>SCC-J10D-A</i>	<i>KV-21V4U</i>	<i>RM-C802</i>	<i>UK</i>	<i>SCC-J14D-A</i>
<i>KV-21V4D</i>	<i>RM-C801</i>	<i>AEP</i>	<i>SCC-J11D-A</i>				

Note :

1. Refer to the Service Manual of VHS MECHANICAL ADJUSTMENTS IV for MECHANICAL ADJUSTMENTS.

	VHS Mechanical Adjustments IV
Part No.	9-973-623-01



VHS Video
combo
Black Trinitron

VIDEOplus
VHS
PAL NTSC 4:3



*Please file according to model size.

TRINITRON® COLOUR VIDEO TV
SONY®

SPECIFICATIONS

TV Section

Television system	See "Receivable channels"
Colour system	See "Receivable channels"
Channel coverage	See "Receivable channels"
Picture tube	Trinitron
	Approx. 54.5cm (21 inches) (Approx. 51cm picture measured diagonally)
Aerial in	75-ohm aerial socket for VHF/UHF

Video Section

Format	VHS standard
Video recording system	Rotary 2-head helical scanning system
Audio recording system	Monaural
Video signal	PAL / SECAM (B only)
Tape speed	PAL / : 23.39mm / sec. NTSC (playback only) : 33.35mm / sec.
Maximum recording time	240minutes with E-240

Inputs and Outputs

Inputs	LINE IN VIDEO : phono jack (1) 1Vp-p, 75 ohms, unbalanced, sync negative
	LINE IN AUDIO : phono jack (1) Input level : 500 mVrms (100% modulation)
Outputs	EURO-AV : 21-pin
Headphones jack	EURO-AV : 21-pin Monaural minijack

General

Clock	Quartz locked
Power back up	Approx. 7 days
Power requirements	230 V AC, 50Hz, 220-240V, (21V4U)
Power consumption	81W, 112W (21V4U)
Operating temperature	5°C to 40°C (41°F to 104°F)
Storage temperature	-20°C to 60°C (-4°F to 140°F)
Dimensions	Approx. 540 x 518 x 470 mm (w / H / d) (21 3/8 x 20 1/2 x 18 5/8 inches)
Mass	Approx. 25 kg (55 lb 2 oz)
Accessories supplied	Remote Commander (1) R6 (size AA) batteries (2)

Designed and specifications are subject to change without notice.

Note

This appliance conforms with the EU Directive 89 / 336 / EEC regarding interference suppression.

RECEIVABLE CHANNELS

ITEM MODEL	Television System	Channel Coverage	Color System
KV-21V4A	B / G	E2 to E12 E21 to E69 A-H, S1 to S41 S01 to S05	PAL
KV-21V4B	B / G / L	E2 to E12 E21 to E69 A-H, S1 to S41 S01 to S05	PAL / SECAM
KV-21V4D	B / G	E2 to E12 E21 to E69 A-H, S1 to S41 S01 to S05	PAL
KV-21V4E	B / G	E2 to E12 E21 to E69 S01 to S41 S01 to S05	PAL
KV-21V4U	I	UHF: U21-U69	PAL

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SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.

(CAUTION)

SHORT CIRCUIT THE ANODE OF THE PICTURE TUBE AND THE ANODE CAP TO THE METAL CHASSIS, CRT SHIELD, OR CARBON PAINTED ON THE CRT, AFTER REMOVING THE ANODE.

WARNING!!

AN ISOLATION TRANSFORMER SHOULD BE USED DURING ANY SERVICE TO AVOID POSSIBLE SHOCK HAZARD, BECAUSE OF LIVE CHASSIS.

THE CHASSIS OF THIS RECEIVER IS DIRECTLY CONNECTED TO THE AC POWER LINE.

SAFETY-RELATED COMPONENT WARNING!!
 COMPONENTS IDENTIFIED BY SHADING AND MARK \triangle ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL FOR SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY. CIRCUIT ADJUSTMENTS THAT ARE CRITICAL FOR SAFE OPERATION ARE IDENTIFIED IN THIS MANUAL. FOLLOW THESE PROCEDURES WHENEVER CRITICAL COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS SUSPECTED.

3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, through functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.

(ATTENTION)

APRES AVOIR DECONNECTE LE CAP DE L'ANODE, COURT-CIRCUITER L'ANODE DU TUBE CATHODIQUE ET CELUI DE L'ANODE DU CAP AU CHASSIS METALLIQUE DE L'APPAREIL, OU AU COUCHE DE CARBONE PEINTE SUR LE TUBE CATHODIQUE OU AU BLINDAGE DU TUBE CATHODIQUE.

ATTENTION!!

AFIN D'EVITER TOUT RISQUE D'ELECTROCUTION PROVENANT D'UN CHASSIS SOUS TENSION, UN TRANSFORMATEUR D'ISOLEMENT DOIT ETRE UTILISE LORS DE TOUT DEPANNAGE. LE CHASSIS DE CE RECEPTEUR EST DIRECTEMENT RACCORDE A L'ALIMENTATION SECTEUR.

ATTENTION AUX COMPOSANTS RELATIFS A LA SECURITE!!

LES COMPOSANTS IDENTIFIES PAR UNE TRAME ET PAR UNE MARQUE \triangle SUR LES SCHEMAS DE PRINCIPE, LES VUES EXPLOSEES ET LES LISTES DE PIECES SONT D'UNE IMPORTANCE CRITIQUE POUR LA SECURITE DU FONCTIONNEMENT. NE LES REMPLACER QUE PAR DES COMPOSANTS SONY DONT LE NUMERO DE PIECE EST INDIQUE DANS LE PRESENT MANUEL OU DANS DES SUPPLEMENTS PUBLIES PAR SONY. LES REGLAGES DE CIRCUIT DONT L'IMPORTANCE EST CRITIQUE POUR LA SECURITE DU FONCTIONNEMENT SONT IDENTIFIES DANS LE PRESENT MANUEL. SUIVRE CES PROCEDURES LORS DE CHAQUE REMPLACEMENT DE COMPOSANTS CRITIQUES, OU LORSQU'UN MAUVAIS FONCTIONNEMENT EST SUSPECTE.

Step 1 — Preparation

SECTION 1 GENERAL

The operating instruction mentioned here are partial abstracts from the Operating Instruction Manual. The page numbers of the Operating Instruction Manual remain as in the manual.

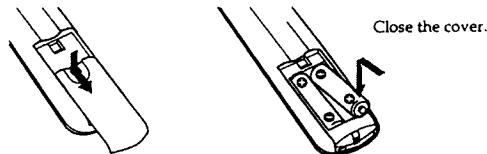
Checking the Supplied Accessories

When you have taken everything out of the carton, check that you have these items:

- Remote Commander
- Two R6 (size AA) batteries



Inserting Batteries into the Remote Commander



Turn the Commander over, and remove the cover.

Check the polarities and position two R6 batteries correctly.

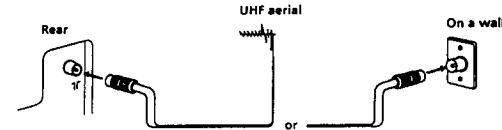
Step 2 — Connecting the Aerial

Connecting an Outdoor Aerial

For better TV reception and recording with clear video picture, connect an outdoor aerial to your video TV.

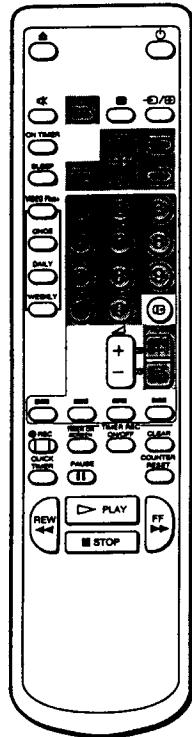
To connect a UHF aerial — 75-ohm coaxial cable (round)

Attach an IEC aerial connector to 75-ohm coaxial cable. Plug the connector into the 1F (aerial) socket of the video TV.



After connecting the aerial, connect the mains lead to a wall outlet.

Step 3 — Tuning in to TV Stations



You should preset the channels (up to 60 channels) by choosing either the automatic or manual method.

The automatic method is easier if you want to preset all receivable channels at once. Use the manual method if you want to allocate programme numbers to the channels one by one.

Before you begin

- Depress the \odot switch on the video TV to switch it on.
If the \odot lamp on the video TV is lit in red, press \square , PROGR +/– or a number button on the Remote Commander.

Selecting the Language on the Menu

You can select one of several languages for the menu and on-screen information.

The initial setting is English.

- Press MENU.

The main menu appears.

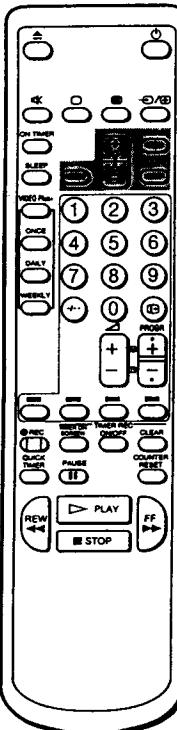


- Move the cursor (\blacktriangleright) to "LANGUAGE" with $+ \odot$ or $- \odot$ and press OK.
The LANGUAGE menu appears.



- Select the language you want with $+ \odot$ or $- \odot$ and press OK.
The selected language is coloured green, and the menu appears in the selected language.
- Press MENU to go back to the original screen.

Note on the DEMONSTRATION function
If you choose "DEMONSTRATION" on the main menu and press OK, you can see a sequential demonstration on the screen. Press any button (e.g. MENU) to stop this function.

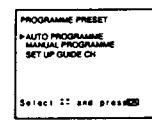


To stop automatic channel presetting
Press \leftarrow on the Remote Commander.

Presetting Channels Automatically

- Press MENU to display the main menu.

2 Move the cursor (\blacktriangleright) to "PROGRAMME PRESET" with $+ \odot$ or $- \odot$ and press OK.
The PROGRAMME PRESET menu appears.



- Move the cursor (\blacktriangleright) to "AUTO PROGRAMME" with $+ \odot$ or $- \odot$ and press OK.
The AUTO PROGRAMME menu appears.

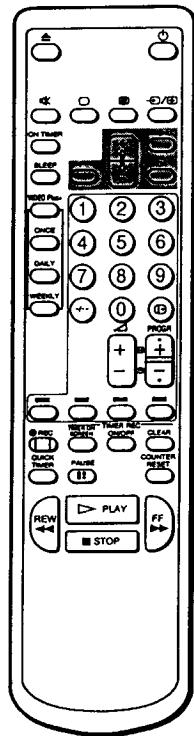


- Press OK.
The programme number you previously watched appears in red in the "PROG" position.
Using $+ \odot$ or $- \odot$, select the programme number from which you want to start presetting except the programme number 00 and press OK.
The CH position turns red.



- Select the channel with $+ \odot$ or $- \odot$ and press OK.
The video TV starts scanning and presetting a receivable channel from the programme number selected in step 4.
The preset programme and channel numbers are displayed on the screen in sequence. When presetting is finished, the original screen appears. All available channels are now stored on successive number buttons.

The preset programme and channel numbers are displayed on the screen in sequence. When presetting is finished, the original screen appears. All available channels are now stored on successive number buttons.

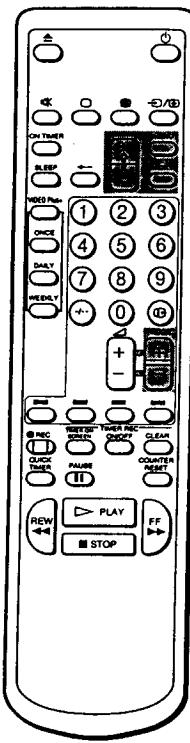


Presetting Channels Manually

- 1 Press MENU to display the main menu.
- 2 Move the cursor (►) to "PROGRAMME PRESET" with + or - and press OK.
The PROGRAMME PRESET menu appears.
- 3 Move the cursor (►) to "MANUAL PROGRAMME" with + or - and press OK.
The MANUAL PROGRAMME menu appears.
- 4 Using + or -, move the cursor (►) to the programme position (number button) to which you want to preset the channel, and press OK.
The SYS position turns red.
- 5 Select the system with + or - and press OK.
The CH position turns red.
- 6 Select the channel you want to preset with + or - and press OK.
- 7 The video TV starts scanning receivable channels. When the channel is found, it stops. If you want to preset this channel, press OK. If not, press + or - to search for another band.
- 8 Repeat steps 4 and 5 to preset other channels.
- 9 After you finish presetting, press MENU to go back to the original screen.

For programme positions beyond 6
The display scrolls by pressing - repeatedly.

If you have made a mistake
Press ← to go back to the previous position.

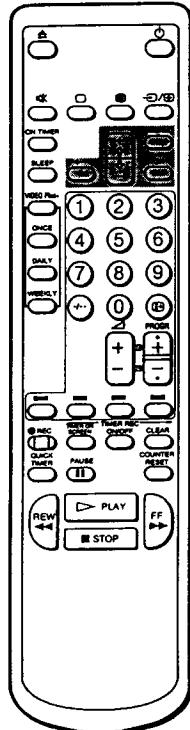


Skipping Programme Positions

You can skip unused programme positions when selecting programme with PROGR +/- buttons. However, the skipped programmes may still be called up when you select them with the number buttons.

- 1 Press MENU to display the main menu.
- 2 Move the cursor (►) to "PROGRAMME PRESET" with + or - and press OK.
The PROGRAMME PRESET menu appears.
- 3 Move the cursor (►) to "MANUAL PROGRAMME" with + or - and press OK.
The MANUAL PROGRAMME menu appears.
- 4 Using + or -, move the cursor (►) to the programme position which you want to skip and press OK.
The "SYS" position turns red.
- 5 Press + or - until "—" appears in the "SYS" position and press OK.
- 6 When you select programmes using the PROGR +/- buttons, the programme position is skipped.
- 7 Repeat steps 4 and 5 to skip other programme positions.
- 8 Press MENU to go back to the original screen.

For programme positions beyond 6
The display scrolls by pressing - repeatedly.



Captioning a TV Station Name

You can name a channel using up to five characters (letters or numbers) to be displayed on the TV screen (e.g. MTV). Using this function, you can easily identify which channel you are watching.

- Press MENU to display the main menu.
 - Move the cursor (►) to "PROGRAMME PRESET" with + ⏚ or - ⏚ and press OK.
The PROGRAMME PRESET menu appears.
 - Move the cursor (►) to "MANUAL PROGRAMME" with + ⏚ or - ⏚ and press OK.
The MANUAL PROGRAMME menu appears.

MANUAL PROGRAMME

PRO	SYS	CH	LABEL	AFT	D
1	-----	C04	-----	ON	-
2	-----	C04	-----	ON	-
3	-----	C04	-----	ON	-
4	-----	C04	-----	ON	-
5	-----	S06	-----	ON	-
6	-----	S06	-----	ON	-

Select **CH** and Press **OK**

 - Using + ⏚ or - ⏚, move the cursor (►) to the programme position you want to caption and press OK repeatedly until the first element of the "LABEL" position turns red.
 - Select a letter or number with + ⏚ or - ⏚ and press OK.
The next element turns red. Select other characters in the same way. For the element you want to leave blank, select "-" and press OK.

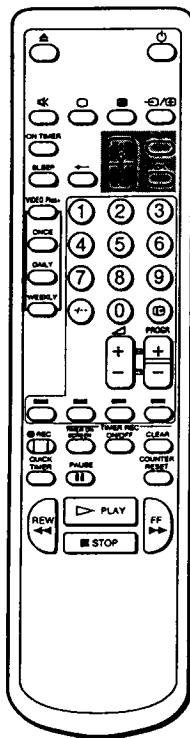
MANUAL PROGRAMME

PRO	SYS	CH	LABEL	AFT	D
1	-----	C04	-----	ON	-
2	-----	C04	-----	ON	-
3	-----	C04	-----	ON	-
4	-----	C04	-----	ON	-
5	-----	S06	-----	ON	-
6	-----	S06	-----	ON	-

Select **CH** and Press **OK**

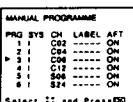
 - After selecting all the characters, press OK repeatedly until the cursor appears. Now the caption you chose is stored.
 - Repeat steps 4 to 6 to caption other channels.
 - Press MENU to go back to the original screen.

If you have made a mistake
Press ← to go back to the previous position

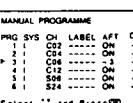


Manual Fine-Tuning

Normally, the automatic fine-tuning (AFT) is already working. However, if the picture of a programme is distorted, you can use the manual fine-tuning function to obtain better picture reception.

- 1 Press MENU to display the main menu.
 - 2 Move the cursor (►) to "PROGRAMME PRESET" with + ⏴ or - ⏵ and press OK.
The PROGRAMME PRESET menu appears.
 - 3 Move the cursor (►) to "MANUAL PROGRAMME" with + ⏴ or - ⏵ and press OK.
The MANUAL PROGRAMME menu appears.
 - 4 Using + ⏴ or - ⏵, move the cursor (►) to the programme position which you want to manually fine-tune, and press OK repeatedly until the AFT position turns red.


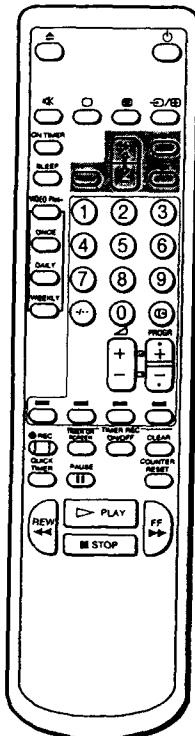
MANUAL PROGRAMME				
PRG	SYS	CH	LABEL	AFT
1		C04	-----	ON
2		C04	-----	ON
► 3		C04	-----	ON
4		C04	-----	ON
5		S04	-----	ON
6		S24	-----	ON

Select ► and Press OK
 - 5 Fine-tune the channel while holding down + ⏴ or - ⏵ so that you get the best TV reception. As you press these buttons, the frequency changes from -15 to +15.


MANUAL PROGRAMME				
PRG	SYS	CH	LABEL	AFT
1		C04	-----	ON
2		C04	-----	ON
► 3		C14	-----	ON
4		C14	-----	ON
5		S04	-----	ON
6		S24	-----	ON

Select ► and Press OK
 - 6 After fine-tuning, press OK.
The cursor (►) appears. The fine-tuned level is now stored.
 - 7 Repeat steps 4 to 6 to fine-tune other channels.
 - 8 Press MENU to go back to the original screen.

To reactivate automatic fine-tuning (AFT)
Repeat from the beginning and select "ON" in step 5.



Setting a Pay-TV channel

You can watch the Pay-TV channel by connecting a Pay-TV decoder to the \odot connector on the rear of the video TV.

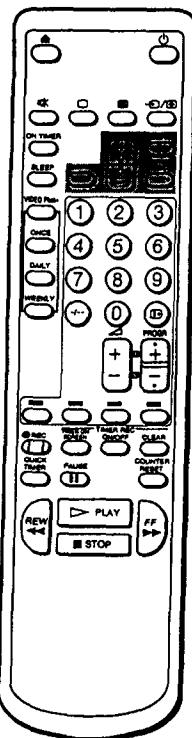
- 1 Press MENU to display the main menu.
- 2 Move the cursor (\blacktriangleright) to "PROGRAMME PRESET" with \oplus or \ominus and press OK.
The PROGRAMME PRESET menu appears.
- 3 Move the cursor (\blacktriangleright) to "MANUAL PROGRAMME" with \oplus or \ominus and press OK.
The MANUAL PROGRAMME menu appears.
- 4 Move the cursor (\blacktriangleright) to the programme position to which you want to set a pay-TV decoder, and press OK until the D position turns red.

MANUAL PROGRAMME	
PROG	SYS CH
1	C02 ----- ON
2	C04 ----- ON
3	C08 ----- ON
4	C12 ----- ON
5	C06 ----- ON
6	C24 ----- ON
7	-----
8	-----
9	-----
0	-----
\oplus	-----
\ominus	-----
RECEIVER	-----
RESET	-----
PROGRAMME	-----
CLEAR	-----
PAUSE	-----
QUICK	-----
PLAY	-----
STOP	-----
FF	-----
REW	-----

- 5 Press \oplus or \ominus until \bullet appears in the D position and press OK.
- 6 Press MENU to go back to the original screen.

If you set a Pay-TV decoder to more than one position
The signal through the Pay-TV decoder is not decoded normally.

Step 4 — Setting up Video Plus+



VIDEO plus+ is a feature that simplifies programming the video TV to make timer recording. To use VIDEO plus+, each programme position needs to be matched with its VIDEO plus+ guide channel. To get the guide channel numbers, see "Guide channels for VIDEO plus+" on page 13, or look in the programme guide for your area that features PlusCodes.

Before you begin

- 1 If the \odot lamp on the video TV is lit in red, press \square , PROGR +/- or a number button on the Remote Commander.

Setting the Guide Channels

- 1 Press MENU to display the main menu.
The main menu appears.

MAIN MENU	
PROGRAMME	ON TIMER SET
ONCE	CLOCK SET
DAILY	QUICK CONTROL
WEEKLY	LANGUAGE
PROGRAMME	PROGRAMME PRESET
DEMONSTRATION	-----
-----	Select \odot and press \square

- 2 Move the cursor (\blacktriangleright) to "PROGRAMME PRESET" with \oplus or \ominus and press OK.
The PROGRAMME PRESET menu appears.

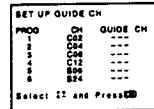
PROGRAMME PRESET	
PROGRAMME	AUTO PROGRAMME
MANUAL PROGRAMME	-----
SET UP GUIDE CH	-----
-----	Select \odot and press \square

- 3 Move the cursor (\blacktriangleright) to "SET UP GUIDE CH" with \oplus or \ominus and press OK.
The SET UP GUIDE CH menu appears.

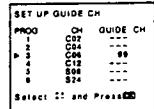
SET UP GUIDE CH		
PROG	CH	GUIDE CH
1	C02	---
2	C04	---
3	C08	---
4	C12	---
5	C06	---
6	C24	---
7	---	---
8	---	---
9	---	---
0	---	---
\oplus	---	---
\ominus	---	---
RECEIVER	---	---
RESET	---	---
PROGRAMME	---	---
CLEAR	---	---
PAUSE	---	---
QUICK	---	---
PLAY	---	---
STOP	---	---
FF	---	---
REW	---	---

If you have made a mistake
Press \leftarrow to go back to the previous position.

- 4 Using + or - , move the cursor (►) to the programme position (number button) to which you want to preset the guide channel, and press OK. The GUIDE CH position turns red.



- 5 Select the guide channel you want to preset with + or - , and press OK.



- 6 Repeat steps 4 and 5 to preset other channels.

- 7 After you finish presetting, press MENU to go back to the original screen.

Guide channels for VIDEO plus+

Guide channel	Station name	Guide channel	Station name
001	BBC1	122	TELECLUB
002	BBC2	123	UK GOLD
003	ITV	124	DISCOVERY
004	CHANNEL 4		THE LEARNING CHANNEL
005	RTE (IRELAND)	125	BRAVO
006	NETWORK 2 (IRELAND)		ADULT CHANNEL
101	SKY ONE	126	CNN
102	SKY NEWS	127	EURONEWS
103	SKY MOVIES	129	QVC
104	THE MOVIE CHANNEL	130	UK LIVING
105	SKY SPORT	131	RAI 1
106	NICKELODEON	132	RAI 2
107	VH-1 GERMANY	133	TVE INTERNATIONAL
108	EUROSPORT	134	MBC/ARABIC
109	GALAVISION	135	VTM
110	MTV EUROPE	136	SPORTNET
111	CHILDREN'S CHANNEL	137	COUNTRY MUSIC TV
112	THE FAMILY CHANNEL	138	VIDEO HITS ONE
113	SKY MOVIES GOLD	139	VH-1
114	BBC WORLD SERVICE	140	SKY SPORT 2 & SOAPS & TRAVEL
115	SUPER SPORT	141	TV ASIA
116	FILMNET 2	142	LA-5
117	FILMNET +	144	LIVE TV
118	RTL PLUS INTERNATIONAL	143	SUPERCHANNEL
119	SAT 1	144	JAPAN TV
120	PREMIERE	145	SELECT TV
121	3 SAT	146	MOVIE CHANNEL FILMNET 1
122	ARD	147	TNT
123	PRO 7	149	CARTOON NETWORK

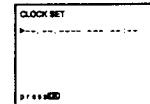
Step 5 — Setting the Clock

You need to set the clock for using timer recording and quick-timer recording functions.

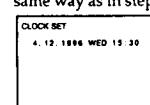
- 1 Press MENU to display the main menu.



- 2 Move the cursor (►) to "CLOCK SET" with + or - and press OK. The CLOCK SET menu appears.



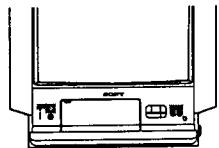
- 3 Press OK to start setting the clock. The day section turns red.
If you have made a mistake
Press ← to go back to the previous position.
If the clock has stopped and
"--" is displayed
You have to re-set the clock.
Using + or - and OK, set the month, year, hour and minute in the same way as in step 4.



- 6 After setting the minute, press OK.
The clock starts working.

- 7 Press MENU to go back to the original screen.

Watching the TV



This section explains the basic functions you use while watching the TV. Most of the operations can be done using the Remote Commander.

Switching the Video TV On and Off

Switching on

Depress the \odot switch on the video TV.
Press \square , PROGR +/- or number buttons on the Remote Commander, or PROGR +/- on the video TV when the \odot lamp is lit in red.

Switching off temporarily

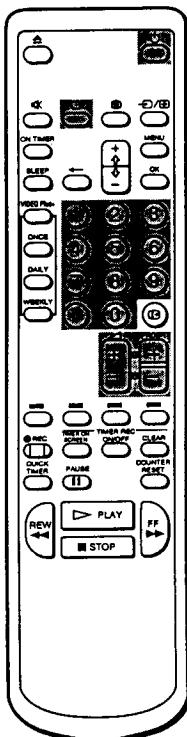
Press \odot .
The video TV enters standby mode and the \odot lamp on the front of the video TV lights up in red.

To switch on again

Press \square , PROGR +/- or number buttons on the Remote Commander, or PROGR +/- on the video TV.

To switch off the main power

Press the \odot switch on the video TV.



Selecting TV Programmes

Press PROGR +/- or number buttons on the Remote Commander, or PROGR +/- on the video TV.

To select a double-digit number using the number buttons

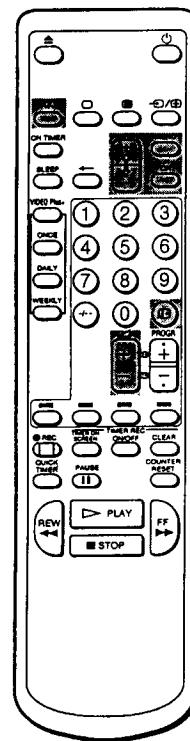
Press $\cdot\cdot$, then the numbers.
For example, if you want to choose 14, press $\cdot\cdot$, 1 and 4.

Adjusting the Volume

Press $\triangleleft/\triangleright$.

Note

When the \odot switch is turned off, all the video operations also do not work.

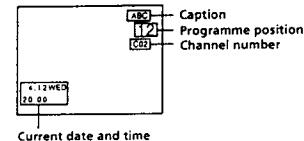


Muting the Sound

Press $\ast\ast$.
The $\ast\ast$ indicator appears and stays on the screen.
To resume normal sound, press $\ast\ast$ again or $\triangleleft/\triangleright$.

Displaying the On-screen Information

Press \square to display the following on-screen information.
To have the programme number, channel number and caption stay on the screen, press \square again.
To make the indications disappear, press \square until no indications are displayed on the screen.



Adjusting the Picture

You can select one of four settings for picture effect in the menu. You can also adjust the picture to suit your own taste.

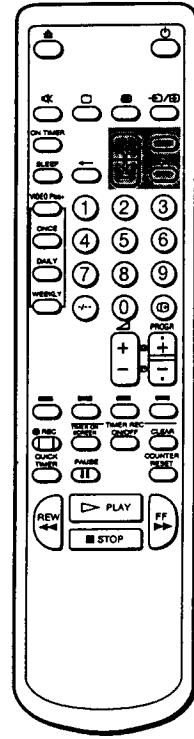
Selecting the picture effect

- 1 Press MENU to display the main menu.



- 2 Move the cursor (\triangleright) to VISUAL MODE with $+ \diamond$ or $- \diamond$ and press OK.
The VISUAL MODE menu appears.





Note
The HUE adjustment is available only for the NTSC colour system.

- Using + or -, select the setting you want and press OK. For the effect of each setting, see the table below.
The selected setting is stored.

Effect of each setting

Setting	Picture effect
PICTURE CONTROL	The adjusted picture control levels are stored. (See "Adjusting the picture displayed on the screen.")
STANDARD	More contrast
MILD	Less contrast
MOVIE	Darker e.g. when watching a movie

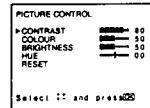
- Press MENU to go back to the original screen.

Adjusting the picture displayed on the screen

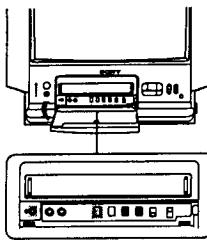
- Press MENU to display the main menu.
- Move the cursor (►) to VISUAL MODE with + or - and press OK. The VISUAL MODE menu appears.



- Move the cursor (►) to PICTURE CONTROL with + or - and press OK. The PICTURE CONTROL menu appears.



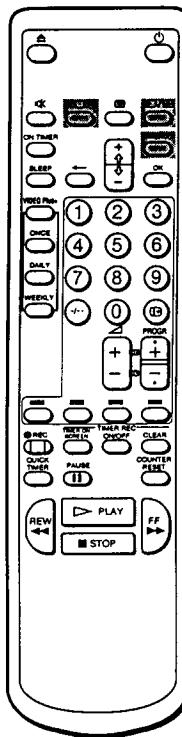
- Using + or -, select the item you want to adjust and press OK.
- Adjust the picture with + or - and press OK.
With each press the vertical bars increase or decrease and the figure at the right margin changes to show the control level. (See the table on the next page.)
- Repeat steps 4 and 5 to adjust other items.



- Press MENU to go back to the original screen.
The adjusted control levels are stored.

Effect of each control

PICTURE CONTROL	Effect
CONTRAST	Less More
COLOUR	Less More
BRIGHTNESS	Darker Brighter
HUE	Greenish Reddish
RESET	Resets all the items to the factory preset levels.



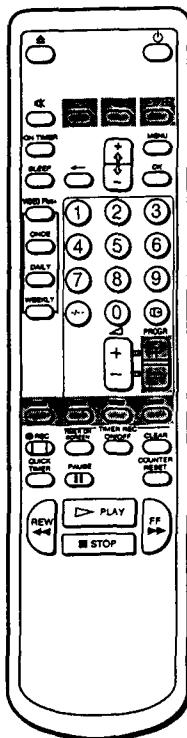
Watching Line Input

Press repeatedly until the desired input indicator appears.
To go back to the normal TV picture, press until the programme position appears, or press on the Remote Commander once. For details of the video input picture, see page 38.

Listening with Headphones

Plug the headphones (not supplied) to the (headphones) jack inside the front panel on the video TV.
The sound from the speaker is shut off.

Viewing Teletext



TV stations broadcast an information service called Teletext via the TV channels. The teletext service allows you to receive various information such as weather forecasts or news at any time.

Switching Teletext on and off

- 1 Select the TV channel which carries the Teletext service you want to watch.
- 2 Press to display Teletext. A Teletext page (normally the index page) is displayed. If there is no Teletext broadcast, the indication P100 is displayed on a black screen.
- 3 Press the number buttons to enter the three-digit of the Teletext number you want. The numbers are displayed on the screen and the requested page appears in a few seconds. If you have made a mistake, type in any three digits, then re-enter the correct page number.
- 4 Press to return to the TV mode.

Using Fasttext

This feature allows you to access a Teletext page with one button press. When a Fasttext page is broadcast, a colour-coded menu appears at the bottom of the screen. The colours of the menu correspond to the red, green, yellow and blue buttons on the Remote Commander. These coloured buttons functions as the fasttext buttons in Teletext mode.

Press the coloured button which corresponds to the colour-coded menu. The page is displayed after a few seconds.

- To change the teletext channel
- First press to return to the TV mode, then repeat steps 1 to 3.
 - If the signal of a TV channel is weak, teletext errors may occur.

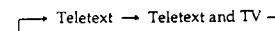
Accessing the next or preceding page

Press .

The next or preceding page appears on the screen.

Superimposing a Teletext page on the TV picture

Each time you press , the screen changes as follows:



Preventing a Teletext page from being updated or changed

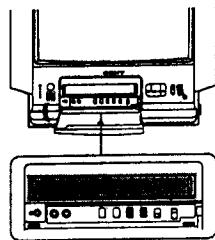
A Teletext page may consist of several subpages. You can stop the page scrolling in order to read the text at your own pace.

Press (HOLD).

The symbol appears on the screen and the selected subpage is held.

Press again to return normal Teletext operation.

Playing a Tape



This section shows you how to insert a cassette and to play it. More convenient functions you can use while playing a tape is shown in "Additional Operations" from page 34.

Inserting a Video Cassette

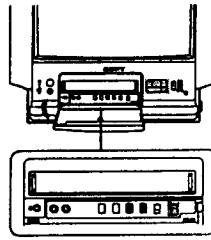
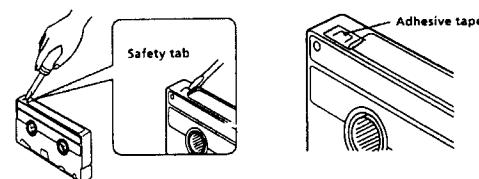
- 1 Press **□**, PROGR +/- or number buttons on the Remote Commander, or PROGR +/- on the video TV when the **PLAY** lamp is lit in red.
- 2 Open the front panel on the video TV.
- 3 Gently press the centre of the front side of a cassette with the arrow indication facing upwards. The cassette is automatically loaded into the cassette compartment.
The **REC** indicator appears on the screen and stays until the cassette has been loaded.
The video TV turns on automatically when it is in standby mode. If you insert a cassette with its safety tab removed, playback starts.

Ejecting a Video Cassette

Press EJECT **△** on the video TV or **△** on the Remote Commander. The **REC** indicator appears and stays until the cassette is ejected. You can eject the cassette even if the power is off.

Protecting Your Cassette against Accidental Erasure

The cassette is provided with a safety tab to protect against accidentally erasing a previous recording. Break off the safety tab with a screw driver or a similar tool.
If the safety tab is removed, the cassette is ejected when you try to record on it.
To record on a cassette with the safety tab broken off, simply cover the tab hole with adhesive tape.



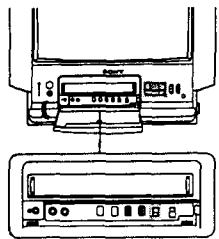
Playing a Tape

- 1 Press **□**, PROGR +/- or number buttons on the Remote Commander, or PROGR +/- on the video TV when the **PLAY** lamp is lit in red.
- 2 Insert a cassette.
If you insert a cassette with its safety tab removed, playback starts automatically.
- 3 Set the COLOUR SYSTEM switch to conform to the colour system of the tape to be played. Normally, set it to AUTO. If streaks appear when playing a tape, switch it to select the colour system.
PAL: to play a tape recorded in PAL colour system
NTSC: to play a tape recorded in NTSC colour system
- 4 Press **PLAY ▷**.
Playback starts. On-screen information is displayed for some seconds.

To stop playback
Press **STOP ■**.
The video TV goes back to the normal TV picture.

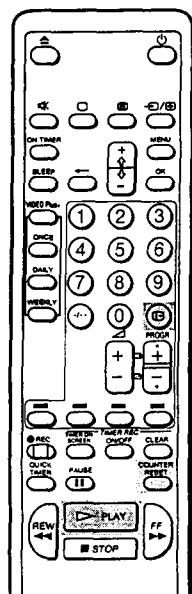
To stop playback for a moment
Press **PAUSE II**. The picture pauses.
Press **PAUSE II** again or press **PLAY ▷** to resume playback.
If you leave your video TV in pause mode, normal playback resumes after about 5 minutes to protect the quality of video tapes.

To fast forward the tape
Press **STOP ■**, then press **FF ▷▷**.
- To rewind the tape**
Press **STOP ■**, then press **REW ▲▲**.
- To search a tape at high speed**
During playback, press and hold **REW ▲▲** (rewind) or **FF ▷▷** (fast forward).
A high-speed picture appears on the TV screen.
To resume normal playback, release the button.
- To view the picture in fast forward or rewind mode**
Press and hold **FF ▷▷** during fast forward or **REW ▲▲** during rewind.
While you hold the button, you can view the picture.
When you release the button, fast forward or rewind mode is resumed.



Playing a Tape Repeatedly (Auto Repeat)

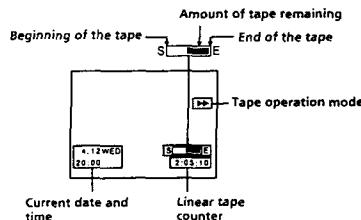
You can play the recorded portion of the tape repeatedly. Set the AUTO REPEAT switch on the video TV to ON, and press PLAY ▶. Playback starts. When the tape reaches the end, the video TV rewinds the tape to the beginning, then plays it.



Displaying the on-Screen Indications

Press **(D)** to display the following on-screen information. To show only the amount of tape remaining and linear tape counter on the screen, press **(D)** again.

To make the indications disappear, press **(D)** until no indications appear.

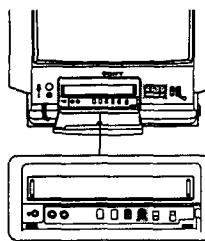


Resetting the Tape Counter

The tape counter helps you to locate a certain scene after playback. Press COUNTER RESET on the Remote Commander to set the counter to "0:00:00" before playing the tape. The tape counter is automatically reset to "0:00:00" whenever a cassette is inserted. The video TV keeps counting the length of the tape being played. Note, however, that the tape counter does not count the portions without video signals recorded.

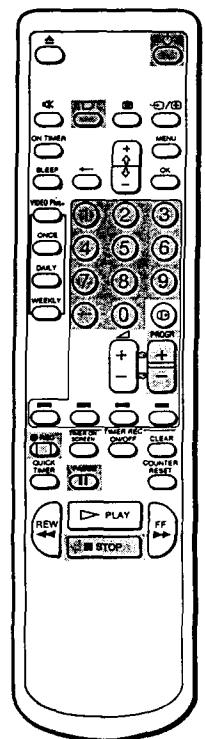
Note
The tape operation mode will be displayed whenever you change the mode (even when the **(D)** is turned off.)

Recording TV Programmes



Recording TV Programmes

- 1 Press **(D)**, PROGR +/- or number buttons on the Remote Commander, or PROGR +/- on the video TV when the **(D)** lamp is lit in red.
- 2 Insert a cassette with a safety tab.
- 3 Select the programme position with PROGR +/- . You can also use number buttons on the Remote Commander. For double-digit numbers (e.g.14), first press **...**, then press 1 and 4.
- 4 Press REC **●**. The REC lamp on the front of the video TV lights up and recording begins.



To stop recording

Press STOP **■**. When the tape reaches the end, the video TV rewinds the tape automatically to the beginning, then stops. This function does not work when the power of the video TV is off.

To pause recording

Press PAUSE **II**. To resume recording, press PAUSE **II** again.

You can cut out an unwanted scene during recording with this button.

- 1 Press PAUSE **II** when an unwanted scene appears on the screen. Recording pauses.
- 2 Press PAUSE **II** again to release the pause mode at the desired scene. Recording resumes from the point set in step 1.

When the recording pause mode lasts for about 5 minutes, the video TV stops recording to protect the quality of video tapes.

Recording with the TV Off

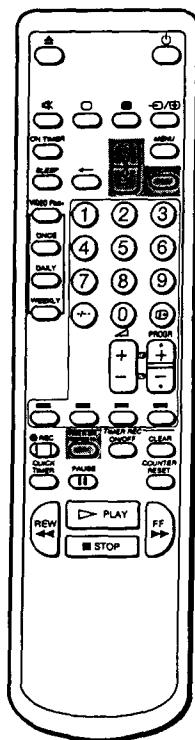
Press **(D)**. The TV screen is turned off and the **(D)** lamp lights up. The video TV continues recording.

Watching a TV programme while recording another

You can watch a TV programme and record another at the same time.

Select the desired programme position with PROGR +/- or the number buttons on the Remote Commander or PROGR +/- on the video TV.

Recording TV Programmes Using the Timer



The Timer Recording function allows you to preset your video TV to record up to six programmes within a one-month period.

Before you begin

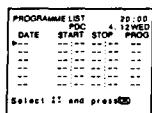
- Press **□**, PROGR +/- or number buttons on the Remote Commander, or PROGR +/- on the video TV to switch on the video TV.
- Make sure that the time and date clock are set. If not, the message "Please set the clock" is displayed on the screen. Refer to "Setting the clock" on page 15.
- Make sure that the loaded cassette has its safety tab. If a cassette without safety tab is loaded, the message "Tape with safety tab is required for recording" is displayed.

Setting the Timer

Example: Here is how to record a programme broadcast on programme position 26 from 20:15 to 21:55 on Friday, 6th December 1996.

1 Press TIMER ON SCREEN.

The PROGRAMME LIST appears.

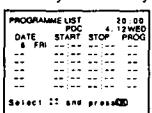


2 Press OK.

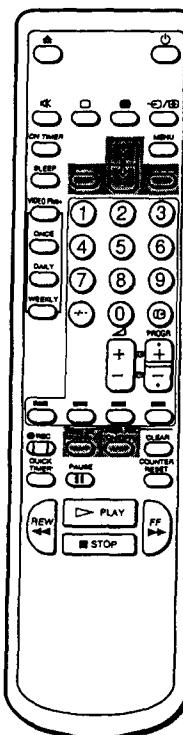
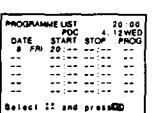
Today's date coloured red appears.

3 Press + 0 until "6 WED" appears.

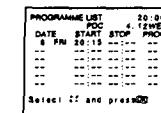
For daily and weekly recording see "Daily/weekly recording" on page 28.



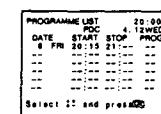
4 Press OK, then set the hour of the recording start time to "20" with + 0 or - 0.



5 Press OK, then set the minute of the recording start time to "15" with + 0 or - 0.



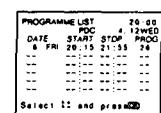
6 Press OK, then set the hour of the recording stop time to "21" with + 0 or - 0.



7 Press OK, then set the minute of the recording stop time to "55" with + 0 or - 0.



8 Press OK, then set the programme position to "26" with + 0 or - 0.



9 Press OK.

The cursor (►) appears at the left margin.

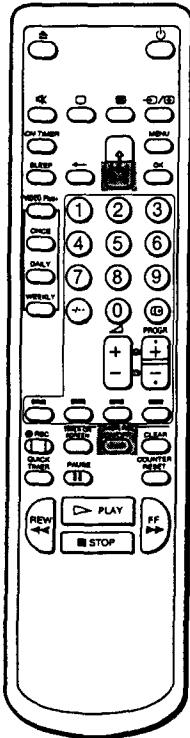
10 When you want to set other programmes, press - 0 to move down the cursor to the next line, then repeat steps 2 to 9.

11 Press TIMER REC ON/OFF.

The TIMER REC lamp on the front of the video TV lights up and the video TV enters timer recording standby mode.

Press TIMER ON SCREEN to erase the PROGRAMME LIST.

Press **□** to turn the video off TV if you do not want to watch the TV. The video TV turns on automatically and starts recording at the preset start time, and goes off at the preset stop time.



Daily/weekly recording

You can preset your video TV to record the same programme every day of the week (daily recording) or the same programme on the same day every week (weekly recording). Press \downarrow in step 3 until the desired setting appears in the "DATE" position. With each press, the setting changes as follows:

4 (today) \rightarrow MON-SUN \rightarrow MON-SAT \rightarrow MON-FRI \rightarrow EVERY SAT \rightarrow EVERY FRI \rightarrow EVERY THU \rightarrow EVERY WED \rightarrow EVERY TUE \rightarrow EVERY MON \rightarrow EVERY SUN \rightarrow 3 (next month) \rightarrow 2.....

To stop timer recording

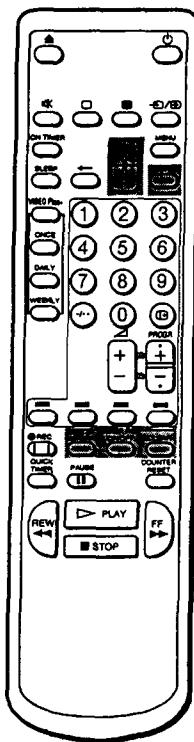
Press TIMER REC ON/OFF.
The TIMER REC lamp turns off.

Using the Video TV before Timer Recording Starts

You can watch a TV programme, check the timer settings and reset the counter in timer recording standby mode. However, press TIMER REC ON/OFF to turn off the TIMER REC lamp on the front of the video TV to do the following operations:

- ejecting the cassette
- using the tape operation buttons
- changing or cancelling the timer settings

Remember to press TIMER REC ON/OFF again to make the TIMER REC lamp light after the above operations.



Checking the Timer Settings

You can display the list of the timer settings which you preset.

Press TIMER ON SCREEN.
The PROGRAMME LIST appears.

PROGRAMME LIST	
DATE	POG
P 8 FRI	START STOP PROG
MON-SAT	10:15 11:30 20
EVERYTHU	23:00 10:00 1
EVERYWED	9:30 12:30 12
EVERYTUE	-- -- -- --
EVERYMON	-- -- -- --
EVERYSUN	-- -- -- --

Select \square and press \square

Press TIMER ON SCREEN again to erase the PROGRAMME LIST.

Changing or Canceling the Timer Settings

1 Press TIMER REC ON/OFF to turn off the TIMER REC lamp on the front of the video TV.

2 Press TIMER ON SCREEN to display the PROGRAMME LIST.

3 Select the setting you want to change or cancel with \downarrow or \uparrow .

PROGRAMME LIST	
DATE	POG
P 7 SAT	START STOP PROG
MON-SAT	10:15 11:30 20
EVERYTHU	23:00 10:00 1
EVERYWED	9:30 12:30 12
EVERYTUE	-- -- -- --
EVERYMON	-- -- -- --
EVERYSUN	-- -- -- --

Select \square and press \square

4 To change the setting

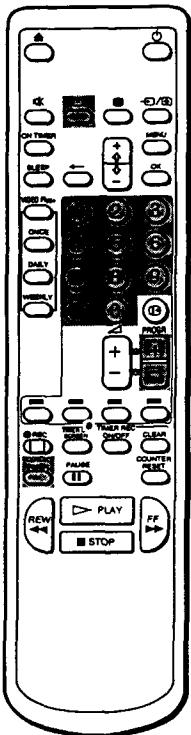
Using \downarrow or \uparrow and OK, re-enter all the items.
Refer to "Setting the timer" steps 2 to 9 on pages 26 and 27.

To cancel the setting

Press TIMER REC CLEAR.

5 Press TIMER ON SCREEN to go back to the original screen.

6 If there are other timer settings on the list, press TIMER REC ON/OFF to set the video TV to timer recording standby mode.



To change the recording time period after quick-timer recording begins
Press QUICK TIMER until the desired time period appears.

To display the remaining time period during quick-timer recording
Press **(B)**. The recording time period decreases minute by minute.

To stop quick-timer recording
Press TIMER REC ON/OFF.

Recording Using the Quick-Timer

You can preset your video TV to start timer recording immediately and to automatically stop recording after a specific time period.
If you have not set the clock, quick-timer recording cannot be done.

If you are recording

- 1 Press QUICK TIMER on the Remote Commander. The "QUICK TIMER 0:00" appears on the screen.
- 2 Press QUICK TIMER repeatedly to select the recording time period. With each press, the time period changes as follows:

0:00 → 0:30 → 1:00 → → 3:30 → 4:00

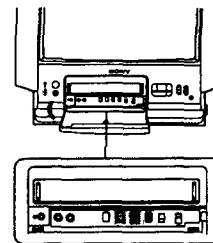
Even if you switch off the video TV, it continues recording. After the selected time period has elapsed, recording stops automatically.

If you are not recording

- 1 Press **□**, PROGR +/- or number buttons on the Remote Commander, or PROGR +/- on the video TV to switch it on.
- 2 Insert a cassette with its safety tab.
- 3 Select the programme position which you want to record.
- 4 Press QUICK TIMER on the Remote Commander. The "QUICK TIMER 0:00" appears on the screen.
- 5 Press QUICK TIMER repeatedly to select the recording time period. With each press the time period changes as follows:

0:00 → 0:30 → 1:00 → → 3:30 → 4:00

The time period turns yellow and recording starts.
Even if you switch off the video TV, it continues recording.
When the preset time period has elapsed, the video TV stops recording.



Timer Recording with PDC Signals

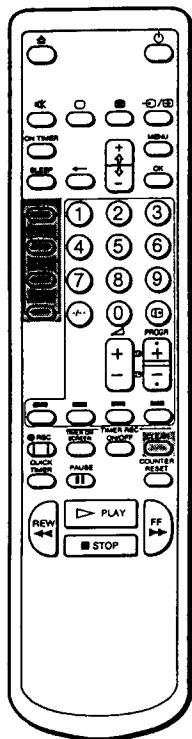
The German broadcasting system transmits PDC (Programme Delivery Control) signals with the TV programmes. These signals assure you that your timer recordings are made regardless of broadcast delays, early starts, or broadcast interruptions. For example, if an urgent news bulletin interrupts a regular programme, recording stops. As soon as the interrupted programme resumes, recording starts again.

- 1 If the TIMER REC lamp is lit on the front panel, press TIMER REC ON/OFF to turn it off.
- 2 Before setting the timer, press PDC on the inside of the front panel so that the PDC lamp lights up.
- 3 Set the timer following the steps in "Setting the timer" (pages 26 and 27).

Notes on PDC recording

- If you use PDC recording while watching the TV, the programme automatically changes to the timer recording programme and you cannot change programmes. Make sure to use PDC recording only when the video/TV set is in standby mode or in power switch off mode. If you watch the TV continuously, cancel the PDC timer recording.
- If recording times overlap due to a PDC time shift, the programme that was broadcast first has priority. Recording of the second programme begins when the first programme has finished.
- If the video TV could not receive a PDC signal because it was too weak or because the station failed to transmit PDC signals, timer recording is made without the PDC function.

Recording TV programmes using VIDEO Plus+



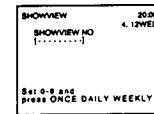
If you have made a mistake
entering programme's
PlusCode
Press TIMER REC CLEAR and re-enter the correct number.

Just enter the programme's "PlusCode" listed in the TV programme guide. The date, times and programme position of that programme are set automatically.

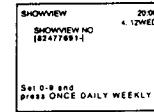
Before you begin

- Press □, PROGR +/- or a number button on the Remote Commander, or PROGR +/- on the video TV to switch on the video TV.
- Make sure that the time and date clock are set correctly. If not, refer to "Setting the clock" on page 15.
- Make sure that the loaded cassette has its safety tab.

- 1 Press VIDEO Plus+.
The SHOWVIEW menu appears.



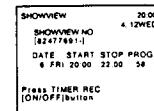
- 2 Press the number buttons to enter the desired programme's PlusCode.



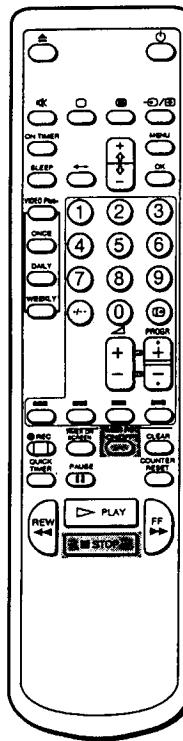
- 3 Press ONCE, DAILY or WEEKLY you want to set.
For each setting, see table below.

To record the programme	Press
Only once	ONCE
Monday to Friday at the same scheduled time	DAILY
Every week at the same scheduled time	WEEKLY

The recording information appears: date, start and stop times, programme position number.



Check that the information is correct. If it is not, press TIMER CLEAR to cancel the setting.



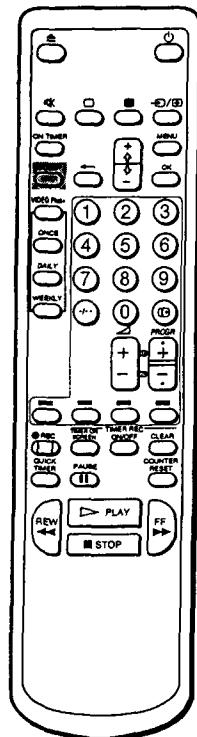
- 4 Repeat steps 2 and 3 to preset another timer setting.

- 5 Press TIMER REC ON.
The TIMER REC lamp on the front of the video TV lights up and the video TV enters timer recording standby mode.

To stop recording

To stop the video TV while recording a programme, press ■ STOP.

Switching off Automatically — Sleep Timer



You can automatically switch the video TV into standby mode after a selected time period.

Press SLEEP.

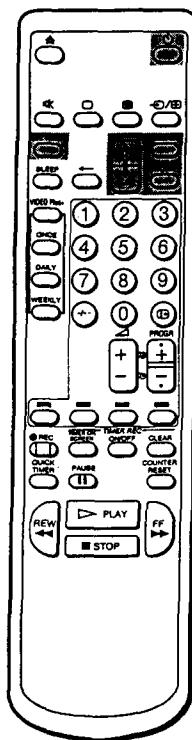
With each press, the time period (in minutes) changes as follows:

OFF → 30 → 60 → 90

One minute before the TV switches into standby mode, a message "Good night" is displayed on the screen.

To cancel the timer
Press SLEEP to select "OFF".

Switching on at Your Desired Time — On Timer



You can preset your video TV to automatically switch on at a desired time. You can select the TV programme or video playback to be switched on.

- 1 Press MENU to display the main menu.
- 2 Move the cursor (▶) to "ON TIMER SET" with + ♂ or - ♀ and press OK. The ON TIMER SET menu appears.

ON TIMER SET
4:12WED
TIME: 6:00
SOURCE: TV PROG 1
ON TIMER: OFF
Select ↵ and press OK

- 3 Press OK.
The timer setting hour section turns red.
- 4 Set the hour with + ♂ or - ♀ and press OK.
The minute section turns red.
- 5 Set the minutes (by one minute) with + ♂ or - ♀ and press OK.
The cursor appears beside "TIME."
- 6 Move the cursor (▶) to "SOURCE" with + ♂ or - ♀ and press OK.
- 7 Select TV or VCR (video playback) to be switched on with + ♂ or - ♀ and press OK.
When you select TV, select the programme position with + ♂ or - ♀ and press OK.

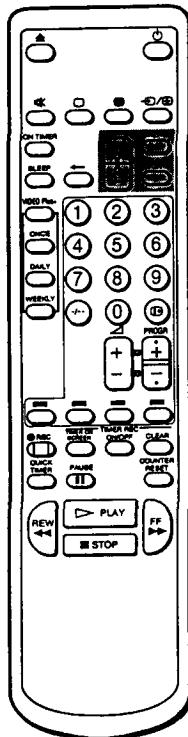
ON TIMER SET
4:12WED
TIME: 7:30
SOURCE: TV PROG 12
ON TIMER: OFF
Select ↵ and press OK

- 8 Move the cursor (▶) to "ON TIMER" with + ♂ or - ♀ and press OK, then select ON with + ♂ or - ♀ and press OK.
- 9 Press MENU to go back to the original screen.

- 10 Press ON TIMER.
The ON TIMER lamp on the front of the video TV lights up.
If you are not using the video TV, press ♂ to set the video TV in standby mode.

At the preset time, the video TV automatically switches on and a message "Good morning" is displayed for five minutes.
If you do not press any button for 2 hours, the video TV automatically shuts off.

Enhancing Video Picture Quality



To go back to automatic tracking
Select AUTO in the TRACKING CONTROL menu with + or - and press OK.

Adjusting the Tracking

Adjusting the Tracking Automatically

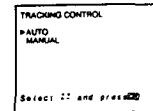
The tracking condition is automatically adjusted on this video TV. The AUTO TRACKING indicator will appear while the video TV is searching for best tracking condition.

Adjusting the Tracking Manually

If streaks or snow noise appear on the video playback picture, adjust the tracking condition manually.

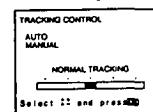
- 1 Press MENU to display the main menu.
- 2 Move the cursor (►) to "TRACKING CONTROL" with + or - and press OK.

The TRACKING CONTROL menu appears.



- 3 Select MANUAL with + or - and press OK.

The tracking meter appears.

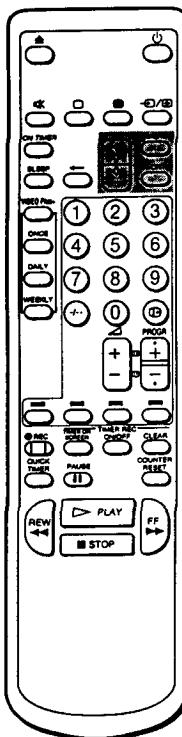


- 4 Using + or -, adjust the tracking to get the best picture.

- 5 Press OK.

The main menu reappears.

- 6 Press MENU to go back to the original screen.



Adjusting with the Optimum Picture Control (OPC)

This function allows you to improve playback and recording quality by adjusting the system parameter automatically according to the condition of the video tape.

This function is set to ON at the factory. To maintain better picture quality, it is advisable to leave the function on. The OPC function works on all types of tapes, even on rental tapes.

To change the setting, use the menu display.

- 1 Press MENU to display the main menu.
- 2 Move the cursor (►) to VISUAL MODE with + or - and press OK.

The VISUAL MODE menu appears.



- 3 Move the cursor (►) to OPC with + or - and press OK.

- 4 Select ON or OFF with + or - and press OK.



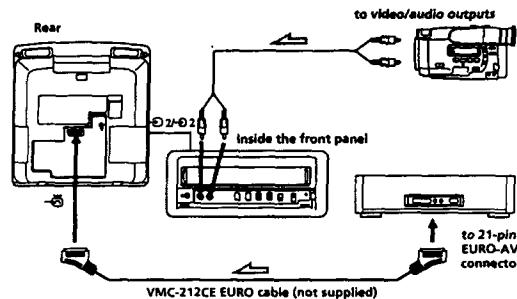
- 5 Press MENU to erase the main menu.

About the Auto Head Cleaner

The auto head cleaner built into this set automatically cleans the video heads when a cassette is loaded or unloaded. If the effect of head cleaning is not sufficient even after a cassette has been loaded/unloaded several times, clean the heads using the Sony V-25CL video head cleaning cassette. For details on head cleaning see page 42.

Connecting Optional Equipment

Watching the Picture Input from Optional Equipment



To watch the video input signal

Press ⊖ repeatedly until the desired input indicator appears on the screen.

- ⊖ 1 for audio/video input or RGB input through the ⊖ 2 connector
If the RGB signal is output from the equipment (L1) player Video game, etc connected to the ⊖ 1, the picture of the TV, VTR or ⊖ 2 does not appear normally. In this case, turn off or unplug the equipment connected to the ⊖ 1.
- ⊖ 2 for audio/video input through the ⊖ 2/⊖ 2 jacks on the front

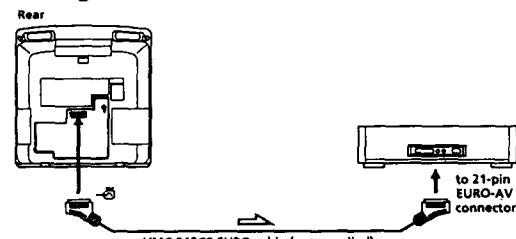
Editing with Another VCR

Using an additional VCR, you can edit a tape.

Editing from another VCR

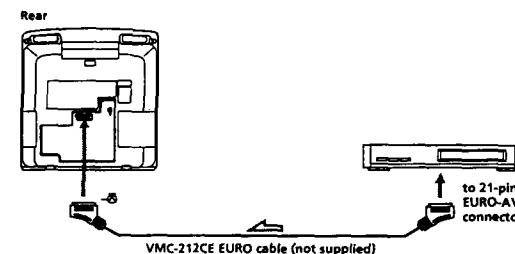
Connections are the same as in "Watching the picture input from optional equipment."

Editing onto another VCR



Watching the Pay-TV Channel

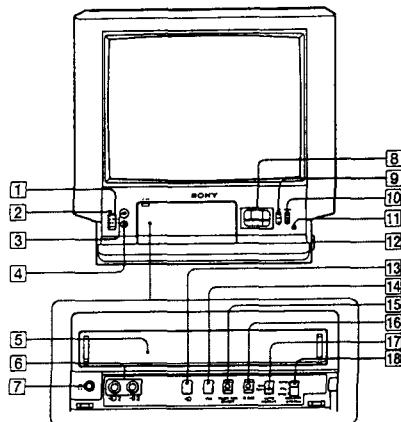
After connecting the pay-TV decoder to the ⊖ 2 connector using VMC-212CE EURO cable, set the Pay-TV decoder following the steps in "Setting a Pay-TV channel" (page 12).



Index to Parts and Controls

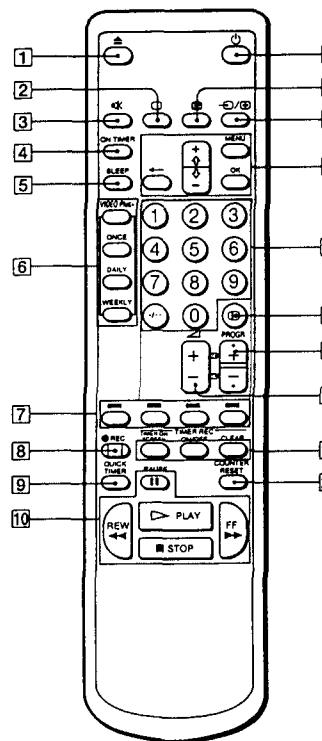
Video TV Set—Front

This section briefly describes the buttons and controls on the video TV set and on the Remote Commander. For more information, refer to the pages next to each description.



- 1** Lamps
REC(recording) (page 25)
TIMER REC(recording) (page 27)
ON TIMER (page 35)
PDC (page 31)
- 2** \odot (standby) lamp (page 16)
- 3** \odot (standby) button (page 16)
- 4** EJECT Δ button (page 22)
- 5** Cassette compartment (page 22)
- 6** \ominus 2/ \oplus 2 (video/audio input) jacks (page 38)
- 7** \ominus (headphones) jack (page 19)
- 8** Tape transport buttons (page 23)
- 9** \triangleleft (volume) +/– buttons (page 16)
- 10** PROGR(programme) +/– buttons (page 16)
- 11** Remote sensor
- 12** \odot (MAIN POWER) switch (page 16)
- 13** \ominus (input select) button (pages 19, 38)
- 14** PDC button (page 31)
- 15** TIMER REC ON/OFF button (pages 28, 29)
- 16** REC(recording) ● button (page 25)
- 17** AUTO REPEAT ON/OFF switch (page 24)
- 18** COLOUR SYSTEM switch (page 23)

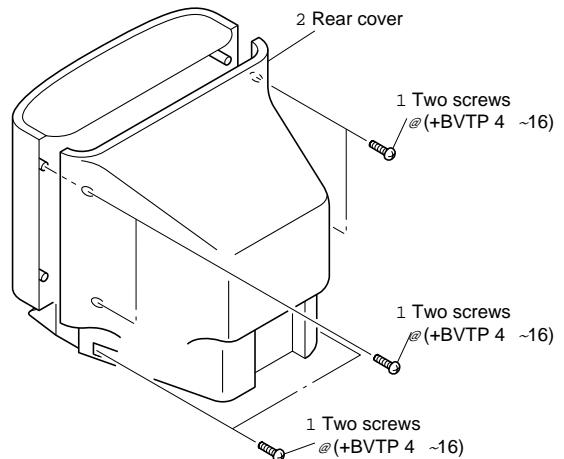
Remote Commander



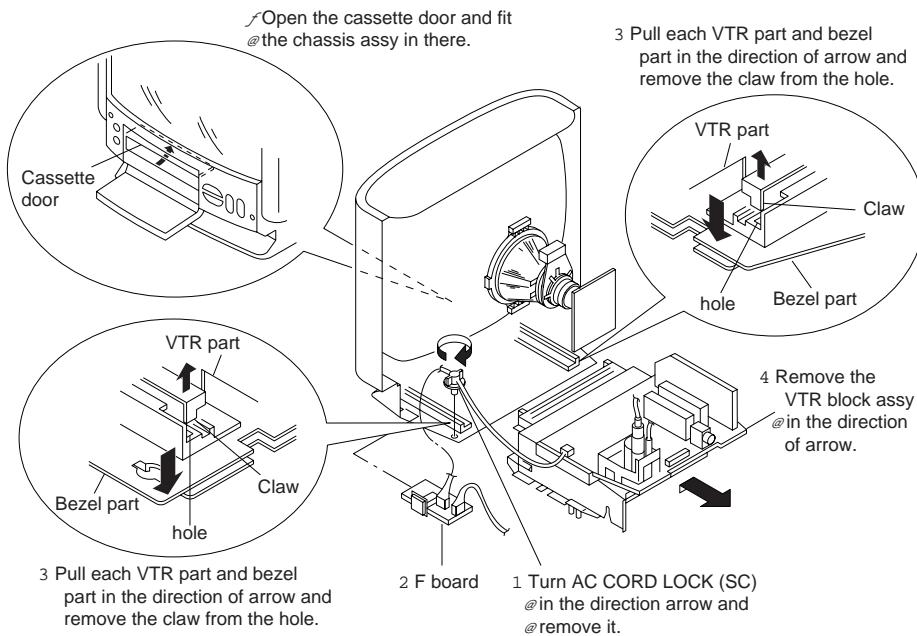
- 1** Δ (eject)button (page 22)
- 2** \odot (TV power on) button (pages 6, 16)
- 3** \times (muting) button (page 17)
- 4** ON TIMER button (page 35)
- 5** SLEEP button (page 34)
- 6** VIDEO Plus+ buttons
ONCE button (page 32)
DAILY button (page 32)
WEEKLY button (page 32)
- 7** Teletext operation buttons (page 20)
- 8** REC (recording) ● button (page 25)
- 9** QUICK TIMER button (page 30)
- 10** Tape transport buttons (page 23)
 \triangleright PLAY, ■ STOP, □ PAUSE, \triangleleft REW
(rewind), $\triangleright\triangleright$ FF (fast forward)
- 11** \odot (standby) button (page 16)
- 12** \odot (Teletext) button (page 20)
- 13** \ominus (input select)/ \oplus button (pages 19, 21, 38)
- 14** Menu operation buttons (pages 6, 7)
MENU
 $+ \odot / - \odot$
 \leftarrow
OK
- 15** Number button (page 6, 16)
- 16** \odot (on-screen display) button (pages 17, 24)
- 17** PROGR (programme) +/–/ \ominus / \odot (Teletext page access) buttons (page 16, 21)
- 18** \triangleleft (volume) +/– buttons (page 16)
- 19** TIMER REC buttons
TIMER ON SCREEN (pages 27, 29)
ON/OFF (pages 27, 29)
CLEAR (page 29, 32)
- 20** COUNTER RESET button (page 24)

SECTION 2 DISASSEMBLY

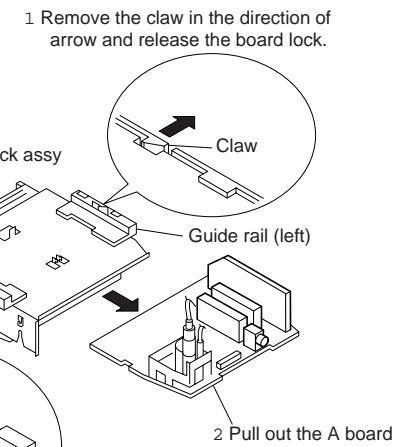
2-1. REAR COVER REMOVAL



2-2. CHASSIS ASSY REMOVAL

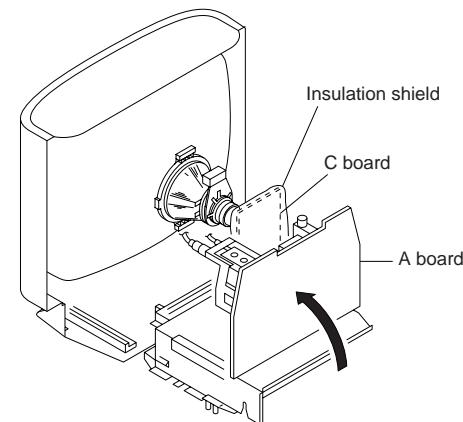


2-3. A BOARD REMOVAL

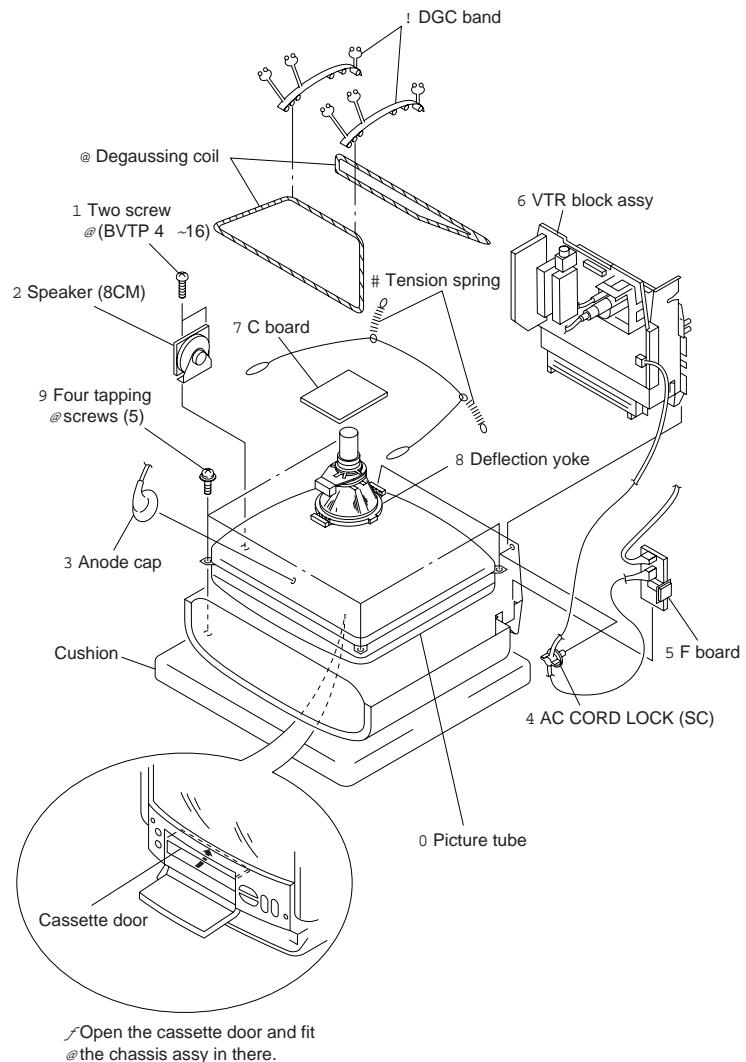


1 Remove the claw in the direction of arrow and release the board lock.

2-4. SERVICE POSITION



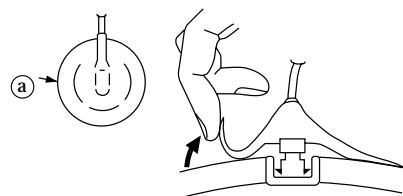
2-5. PICTURE TUBE REMOVAL



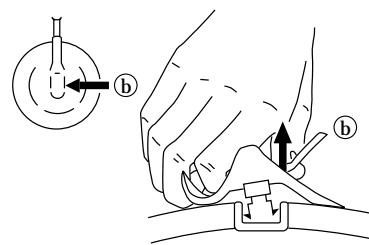
• REMOVAL OF ANODE-CAP

NOTE : Short circuit the anode of the picture tube and the anode cap to the metal chassis, CRT shield or carbon paint on the CRT, after removing the anode.

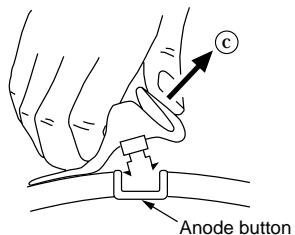
• REMOVING PROCEDURES



@ Turn up one side of the rubber cap in the direction indicated by the arrow a .



A Using a thumb pull up the rubber cap firmly in the direction indicated by the arrow b .



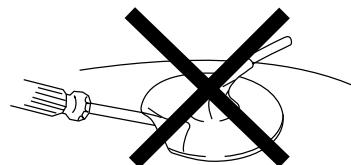
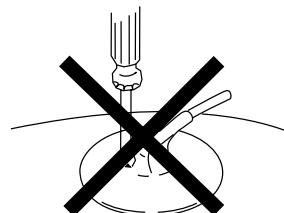
B When one side of the rubber cap is separated from the anode button, the anode-cap can be removed by turning up the rubber cap and pulling up it in the direction of the arrow c .

• HOW TO HANDLE AN ANODE-CAP

① Don't hurt the surface of anode-caps with sharp shaped material!

② Don't press the rubber hardly not to hurt inside of anode-caps! A material fitting called as shatter-hook terminal is built in the rubber.

③ Don't turn the foot of rubber over hardly! The shatter-hook terminal will stick out or hurt the rubber.



SECTION 3

SET-UP ADJUSTMENTS

- The following adjustments should be made when a complete realignment is required or a new picture tube is installed.
- These adjustments should be performed with the rated power supply voltage, unless otherwise noted.

The Contrast and Brightness controls should be set as follows unless otherwise noted:

CONTRAST control 80%
(or Normal by commander)
BRIGHTNESS control .. 50%

Perform the adjustments in the following order:

1. Beam Landing
2. Convergence
3. Screen (G2), Drive, White Balance, Sub Color and Sub Brightness.
4. Focus

Note: Test Equipment Required.

1. Color bar/Pattern Generator
2. Degausser
3. DC Power Supply
4. Digital multimeter
5. Oscilloscope

Preparation:

- In order to reduce the influence of external magnetic forces on the picture tube, face the TV set in an easterly or westerly direction.
- Turn the power switch for the unit ON and erase the magnetic force using a degausser.

3-1. BEAM LANDING

Demagnetize with a degausser.

1. Input an all white raster signal from the pattern generator.
CONTRAST } normal
BRIGHTNESS }
2. Switch the raster signal of the pattern generator to Red.
3. Move the deflection yoke backward, and adjust with the purity control so that Red is at the center and the Blue and Green are evenly spaced at the sides. see (Fig. 3-1 - 3-3)
4. Move the deflection yoke forward, and adjust so that the entire screen becomes Red. (Fig. 3-1)
5. Switch the raster signal to Blue and then Green to confirm the condition.
6. When the position of the deflection yoke has been determined, tighten it with the deflection yoke mounting screw.
7. When the landing at the corners is not correct, adjust by using disk magnets. (Fig. 3-4)

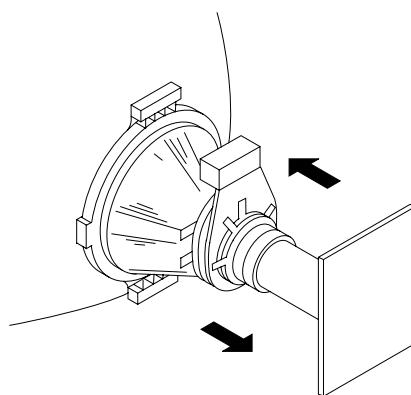


Fig. 3-1

Fig. 3-2

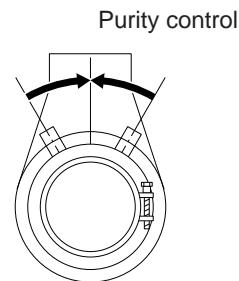


Fig. 3-3

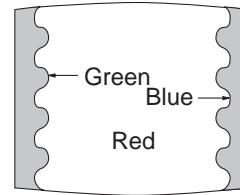
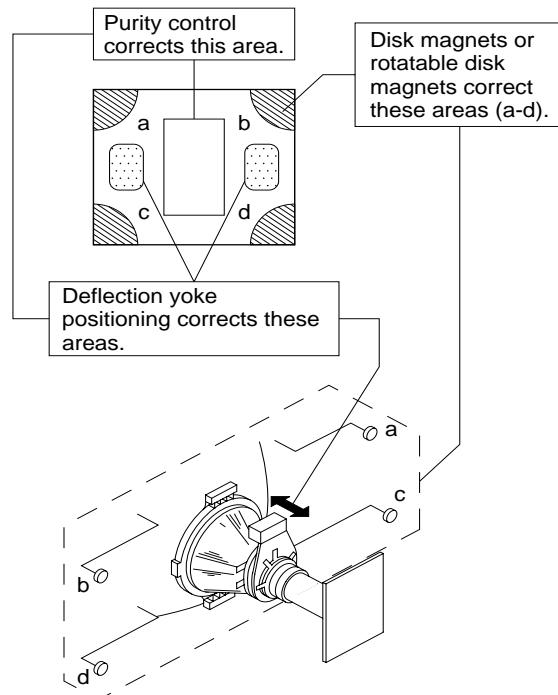


Fig. 3-4

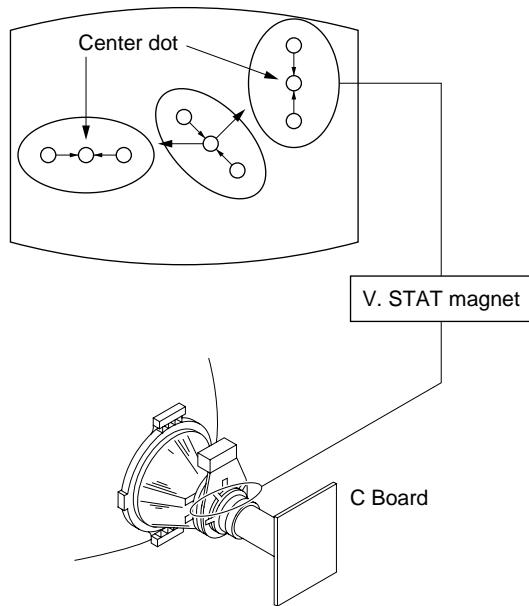


3-2. CONVERGENCE

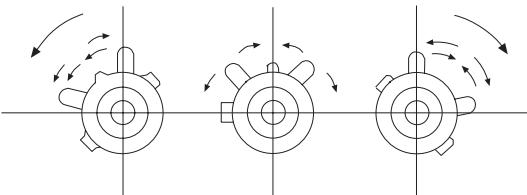
Preparation:

- Before starting, perform FOCUS, H.SIZE, and V.SIZE adjustments.
- Set the BRIGHTNESS control to minimum.
- Input a dot pattern from the pattern generator.

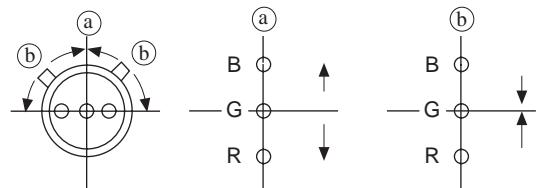
(1) Horizontal and Vertical Static Convergence



1. Adjust the V.STAT magnet to converge the Red, Green and Blue dots at the center of the screen. (Vertical and Horizontal movement)
- Tilt the V.STAT magnet and adjust the static convergence by opening or closing the V.STAT magnet.



2. When the V.STAT magnet is moved in the direction of the (a) and (b) arrows, the Red, Green and Blue dots move as shown below.

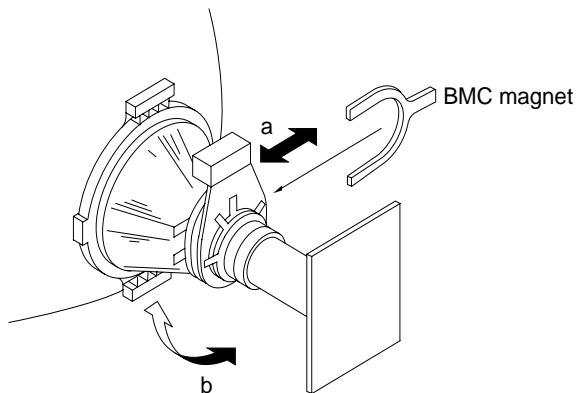


3. Adjust the H.STAT VR on "C" board to converge the Red, Green and Blue dot at the Center of the screen (Horizontal movement).

If the Red and Blue dots do not converge with the Green dots, perform the following steps.

1. Move the BMC magnet (a) to correct for insufficient H.static convergence.
2. Rotate the BMC magnet (b) to correct for insufficient V.static convergence.

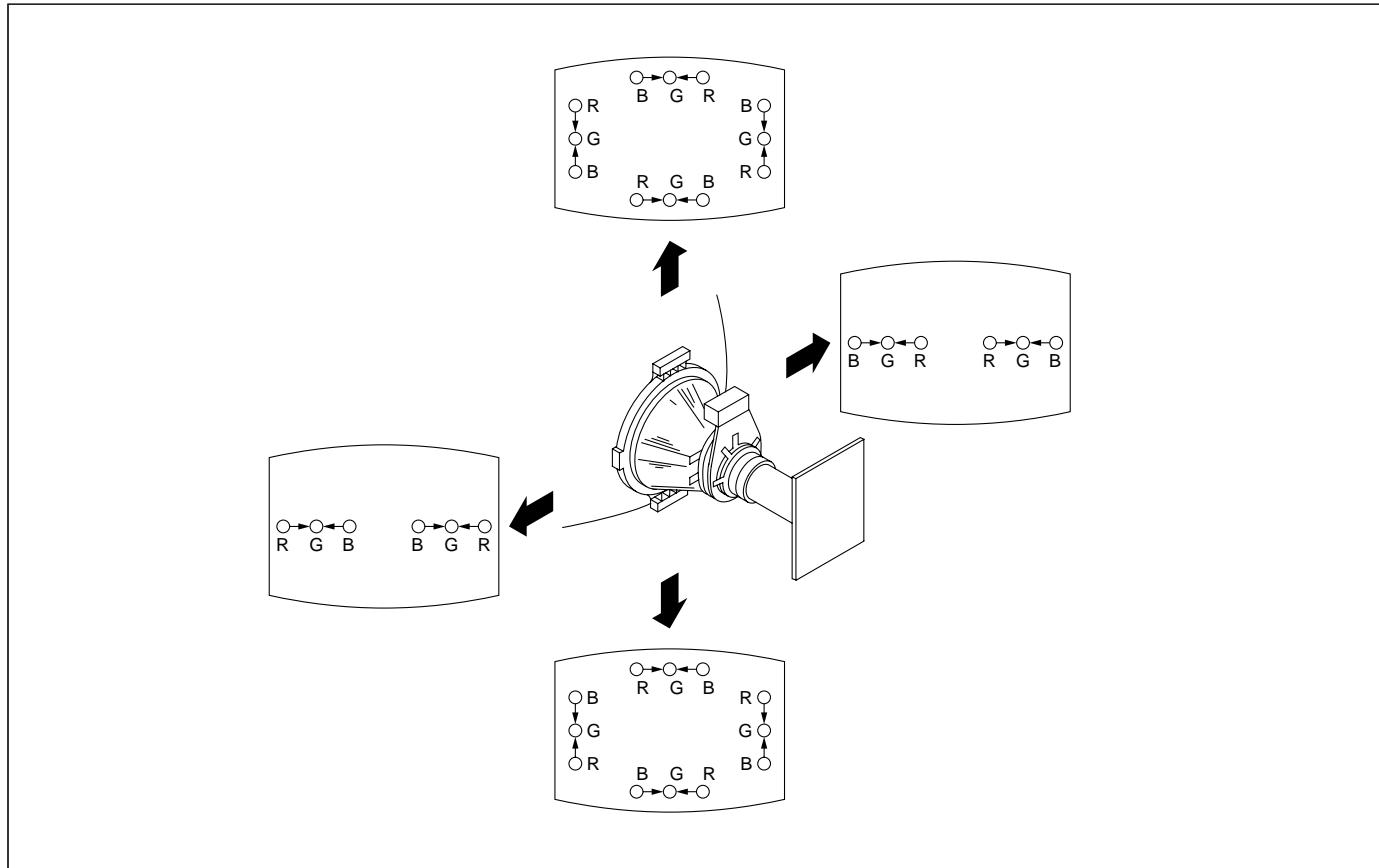
In either case, repeat the Beam Landing Adjustment.



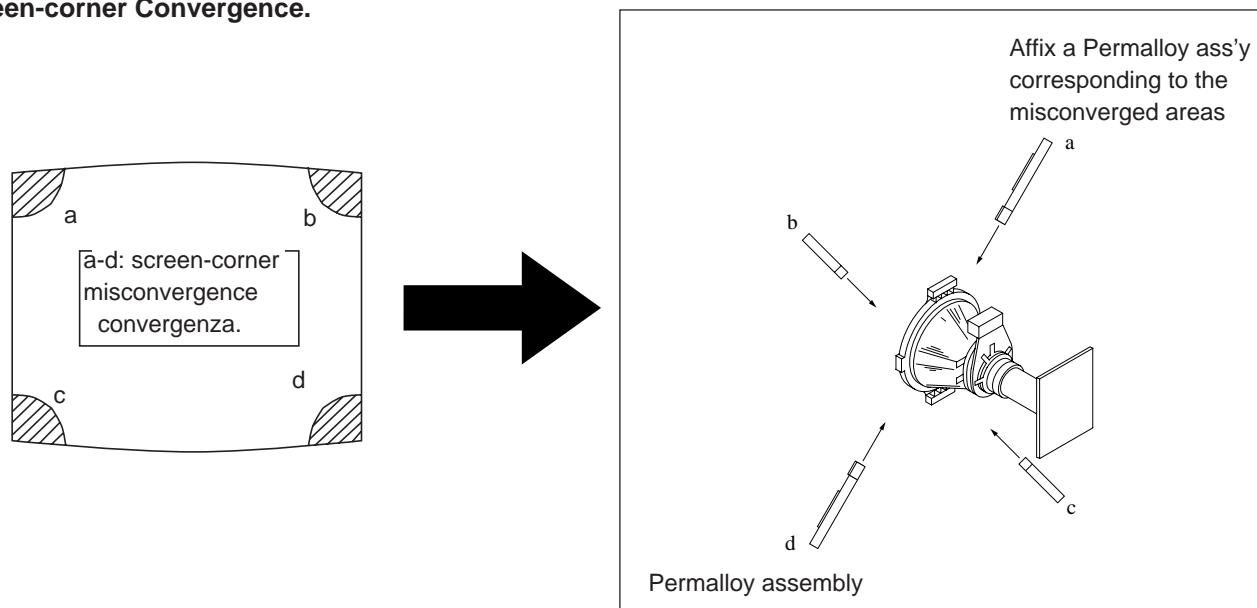
(2) Dynamic Convergence Adjustment

Preparation:

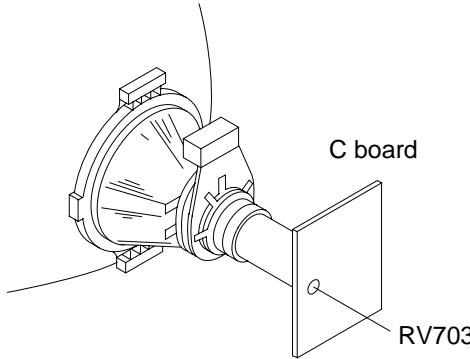
- Before starting to perform the Horizontal and Vertical static convergence adjustment.
- 1. Slightly loosen the deflection yoke screw.
- 2. Remove the deflection yoke spacers.
- 3. Move the deflection yoke for best convergence as shown below.
- 4. Tighten the deflection yoke screw.
- 5. Install the deflection yoke spacers.



(3) Screen-corner Convergence.



3-3. SCREEN(G2), DRIVE, WHITEBALANCE, SUB COLOR and SUB BRIGHTNESS.

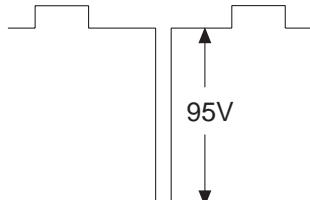


Screen (G2) setting

1. Input a 0 IRE (Black Level) signal from the pattern generator.
2. Enter into the Service Mode "ON SCREEN DIS" "DIGIT 5" "VOLUME +" "TV" then select "G2" with "1" or "4" key.
3. Adjust RV703 until the Down arrow is displayed.
4. Adjust RV703 until the Down arrow just disappears.
5. Press the **TV** Button on the Remote Commander to store the data.

Drive Level

1. Input a Video signal containing a small area of 100% white on a black background.
2. Connect an oscilloscope to Pin (7) of J701 (R OUT) on the C Board.
3. Set the Picture to maximum.
4. Enter into the Service mode.
5. Using the "1" and "4" buttons select "RIN".
6. Using the "3" and "6" buttons on the Remote Commander adjust until the oscilloscope waveform has an amplitude of 95V.

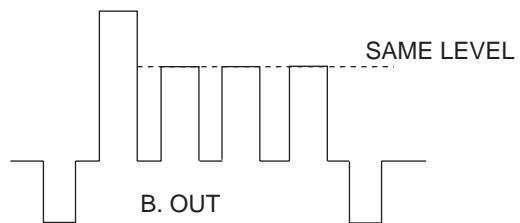


White Balance Adjustment

1. Input an all white pattern from the pattern generator.
2. Adjust the Color and Brightness controls to the standard level.
3. Enter into the Service Mode.
4. Adjust the "GIN" and "BIN" so that the White Balance becomes optimum.

Sub Color Adjustment

1. Input a PAL color bar pattern from the pattern generator.
2. Connect an oscilloscope to Pin (5) of J701 (B OUT) on the C Board.
3. Enter into the Service Mode "ON SCREEN DIS" "DIGIT 5" "VOLUME +" "TV" then select "G2" with "1" or "4" key.
4. Using the "3" and "6" buttons on the Remote Commander adjust until the oscilloscope waveform becomes as follows :



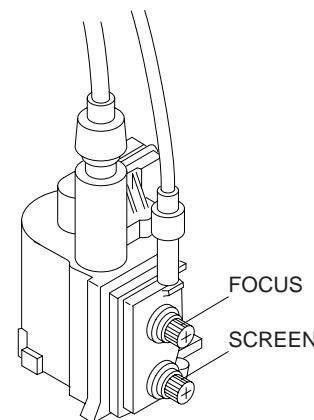
Note : If the TV is able to receive PAL and SECAM transmissions, repeat the above procedure using a SECAM color bar signal.

Sub Brightness Adjustment

1. Input a Philips pattern from the pattern generator.
2. Enter into the Service Mode "ON SCREEN DIS" "DIGIT 5" "VOLUME +" "TV" then select "G2" with "1" or "4" key.
3. Using the "3" and "6" buttons on the Remote Commander adjust until the 0 IRE of the grey scale and the cut off are only slightly visible on the screen.
4. You must write all adjusted data in service mode as following procedure Push "X" then "0" by remote commander.

3-4. FOCUS

Adjust the FOCUS control RV704 so that the whole screen is in best focus.



SECTION 4

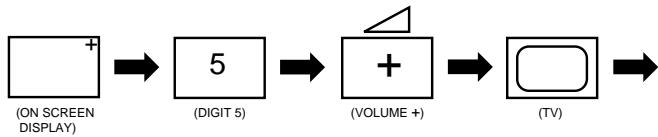
CIRCUIT ADJUSTMENTS

4-1. ELECTRICAL ADJUSTMENTS

Service adjustment to this model can be performed with the supplied Remote Control Commander RM-C801, C802, C803.

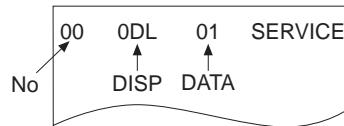
HOW TO ENTER INTO SERVICE MODE

1. Turn on the main power of the set and enter into stand-by mode.
2. Press the following sequence of buttons on the Remote Control Commander.



"Service mode" will appear in the top right corner of the screen Other status information will also be displayed.

3. Press the "1" or "4" buttons to select the adjustment item from the table.
4. Press the "3" or "6" buttons to change the data as required.
5. Turn off the power to quit the service mode when adjustments are completed.



Range of adjustments available from the on screen menu system.

No.	DISP	DATA (Range) (HEX)	DATA Standard (HEX)	Item	BIT
00	ODL	00~FF	08	Power On Delay	0~7
01	OSH	00~3F	02	On Screen H-posi.	0~5
* 02	MUT	00~01	01	FTZ Muting On	0
03	VAM	00~3F	1A	V. SIZE	0~5
* 04	VBC	00~3F	00	V-Breath Correct.	0~5
* 05	PAM	00~3F	00	Parabola Amp.	0~5
* 06	PTI	00~3F	20	Parabola Tilt	0~5
07	VLI	00~3F	28	V-Linearity	0~5
* 08	CCR	00~3F	00	Corner Correction	0~5
* 09	HAM	00~3F	15	V. CENT	0~5
10	VPO	2A (Fix)	32	V-Position	0~5
11	HPH	00~3F	29	H. CENT	0~5
12	BIN	00~3F	12	Blue Intensity	0~5
13	GIN	00~3F	14	Green Intensity	0~5
14	RIN	00~3F	16	Red Intensity	0~5
15	CLS	00~04	00	Color System	0~7
16	SCO	00~0E	0A	Sub Contrast	0~5
17	SBR	00~0E	03	Sub Brightness	0~5
18	SSA	00~04	02	Sub Saturation	0~5
19	SHU	00~04	02	Sub Hue	0~5
20	SSH	(Fix)	07	Sub Sharpness	0~5
21	G2 ADJ	read only	—	G2 Adjustment	6~7
22	32K ADJ	Clock			

Note

*Mark Don't adjust the Service Menu.

PLL ADJUSTMENT (ALL DESTINATIONS)

1. Input a 38.9MHz 100dB μ CW signal at the IF Out injection point.
2. Connect a digital voltmeter to IC101 pin (23).
3. Adjust T101 AFT for 2.5V \pm 0.3V dc.

TU AGC ADJUSTMENT (ALL DESTINATIONS)

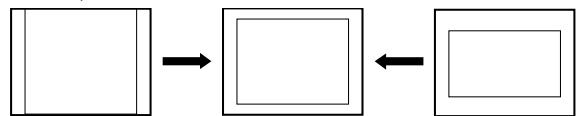
1. Input a RF signal.
2. Adjust RF level of 64db μ V on E-54ch. (In case of System B/G, other system is same ch.)
3. Select ch to E-54.
4. Adjust RV101 so that AGC voltage to 3.0 \pm 0.3V.

DEFLECTION SYSTEM ADJUSTMENT

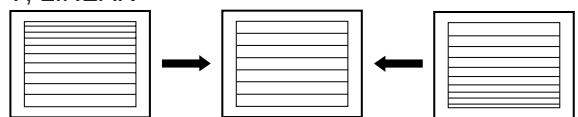
1. Enter into the service mode.
2. Using the "1" or "4" buttons select the Adjust item.
3. Press the "3" button to enter the adjustment submenu.
4. Select and adjust each item in order to obtain the optimum image.

Adjustment	Set	Range
V, SIZE	1A	00 - 3F
VER, BREATH	14	00 - 3F
PAR, AMPL	00	00 - 3F
PAR, TILT	00	00 - 3F
V, LINEAR	28	00 - 3F
CORN, CORR	00	00 - 3F
V, POSITION	32	2A (Fix)
H, CENTRE	29	00 - 3F

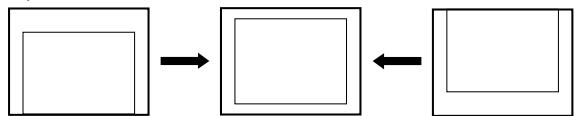
VERT, AMPL



V, LINEAR



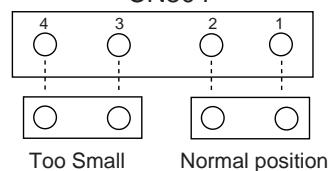
V, CENTRE



H, CENTRE



H, SIZE



Fit the link as required to obtain the correct horizontal picture size. Remove the link if the H, SIZE is to large.

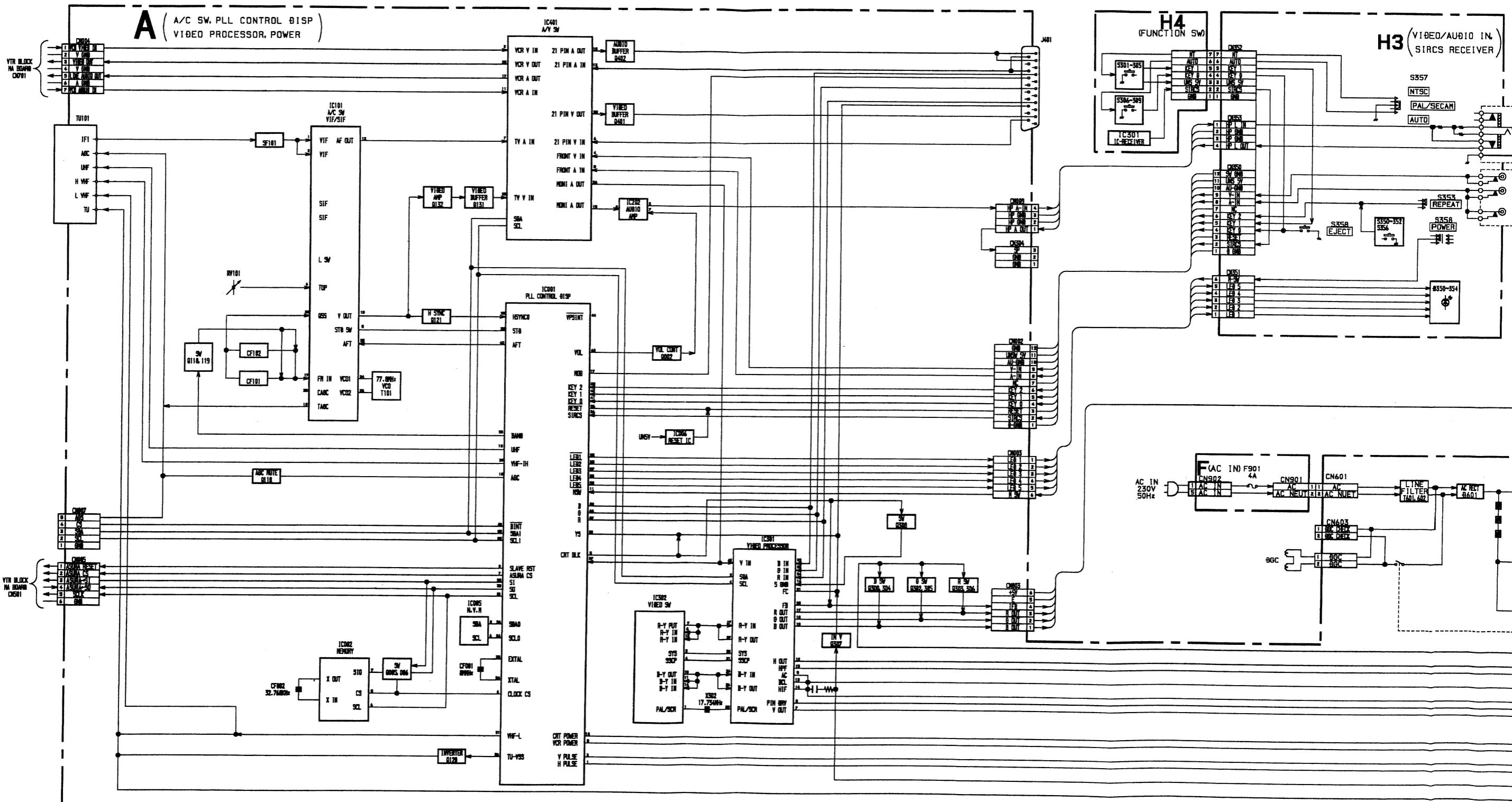
L SYSTEM ADJUSTMENT (B MODEL ONLY)

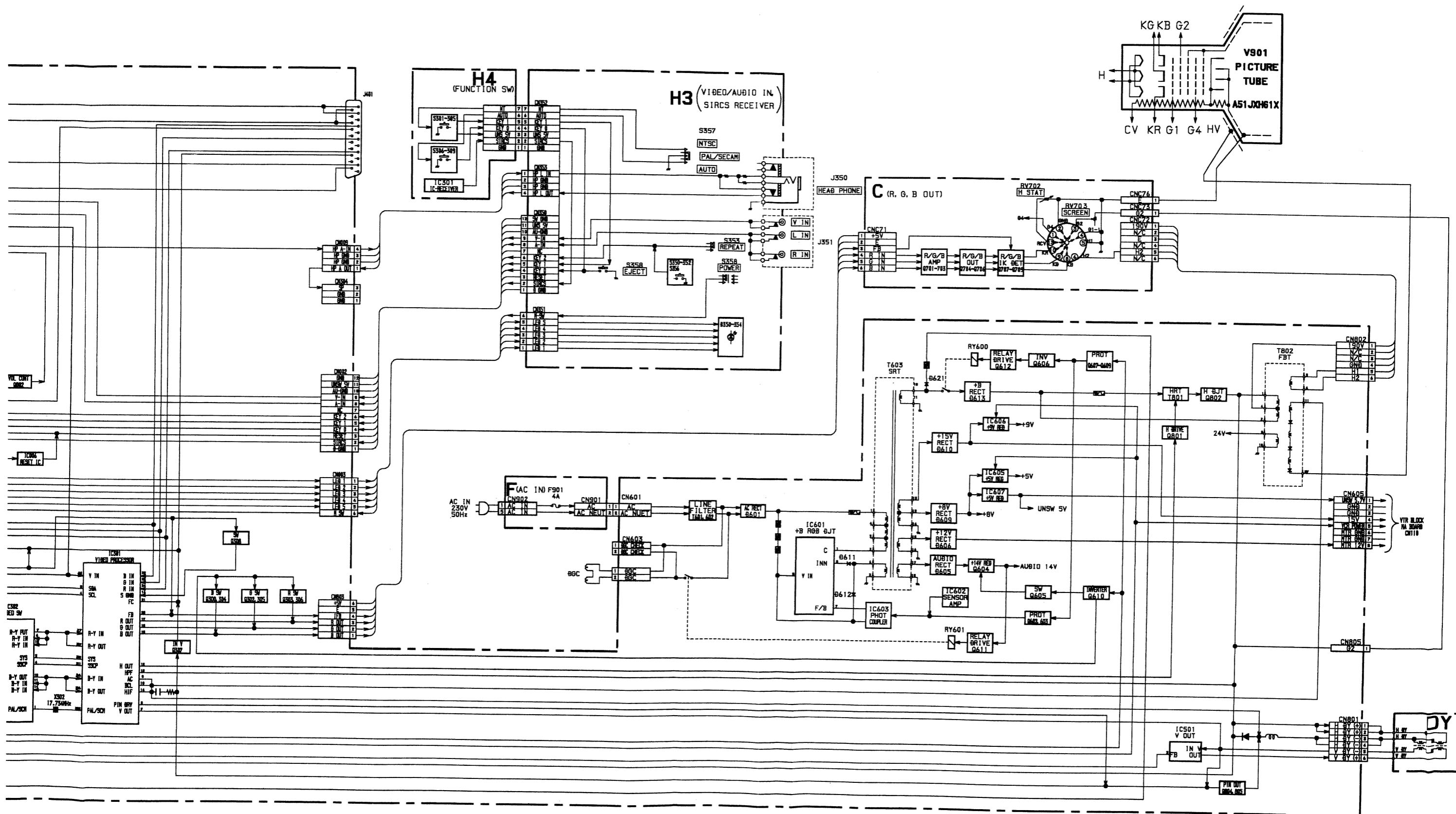
1. Input a 38.9MHz, 100dB μ CW signal at the IF out injection point (SF101 pin (1)).
2. Connect a digital voltmeter to IC101 pin (23).
3. Adjust RV102 so that voltage to 3.0 V \pm 0.3V dc.

SECTION 5

DIAGRAMS

5-1. BLOCK DIAGRAM

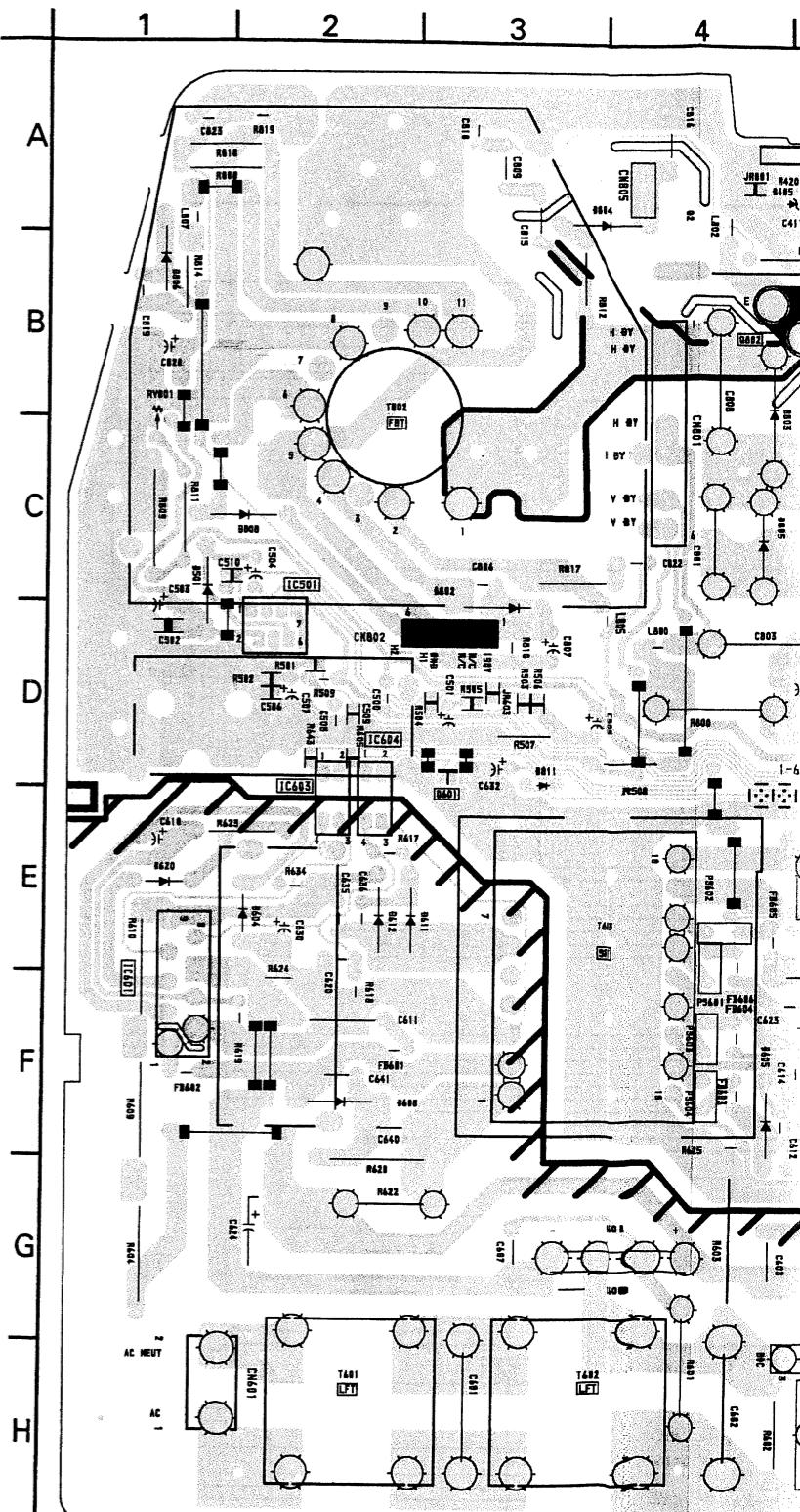
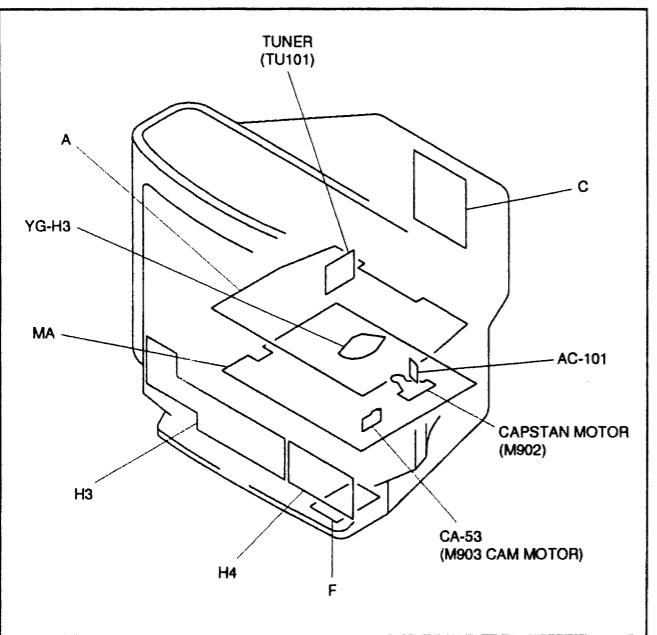




B-556037<0IR>-BLOCKZU-TV

A

[TUNER, A/V SW, VIDEO PROCESS, PLL CONTROL DISP]

- A BOARD -**5-2. CIRCUIT BOARDS LOCATION****Reference information**

RESISTOR	: RN	METAL FILM
	: RC	SOLID
	: FPRD	NONFRAMMABLE CARBON
	: FUSE	NONFLAMMABLE FUSIBLE
	: RW	NONFLAMMABLE WIREWOUND
	: RS	NONFLAMMABLE METAL OXIDE
	: RB	NONFLAMMABLE CEMENT
	: *	ADJUSTMENT RESISTOR
COIL	: LF-8L	MICRO INDUCTOR
CAPACITOR	: TA	TANTALUM
	: PS	STYROL
	: PP	POLYPROPYLENE
	: PT	MYLAR
	: MPS	METALIZED POLYESTER
	: MPP	METALIZED POLYPROPYLENE
	: ALB	BIPOLAR
	: ALT	HIGH TEMPERATURE
	: ALR	HIGH RIPPLE

5-3. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS**Note:**

- All capacitors are in μF unless otherwise noted. pF: $\mu\mu\text{F}$ 50V or less are not indicated except for electrolytics and tantalums.
- All electrolytics are in 50V unless otherwise specified.
- All resistors are in ohms.

$$\text{k}\Omega = 1000\Omega, \text{M}\Omega = 1000\text{k}\Omega$$

- Indication of resistance, which does not have one for rating electrical power, is as follows.

Pitch: 5 mm
Rating electrical power: 1/4W

- 1/4W in resistance, 1/10W and 1/8W in chip resistance.
- : nonflammable resistor.
- : fusible resistor.
- : internal component.
- : panel designation and adjustment for repair.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- Readings are taken with a color-bar signal input.
- Readings are taken with a 10M Ω digital multimeter.
- Voltages are dc with respect to ground unless otherwise noted.
- Voltage variations may be noted due to normal production tolerances.
- All voltages are in V.

* : Measurement impossibility.

— : B + line.

— : B - line.

(Actual measured value may be different).

→ : signal path. (RF)

• Circled numbers are waveform reference.

Note: The symbol display is on the component side.

The components identified by shading and mark are critical for safety. Replace only with part number specified.

The symbol indicate fast operating fuse. Replace only with fuse of same rating as marked.

Note: Les composants identifiés par un trame et une marque sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Le symbole indique une fusible à action rapide. Doit être remplacée par une fusible de même valeur, comme maque.

A BOARD

IC	
IC001	E-9
IC002	D-10
IC005	F-8
IC006	G-11
IC101	B-9
IC202	H-7
IC301	G-9
IC302	H-9
IC401	B-6
IC501	D-2
IC601	F-1
IC602	F-6
IC603	E-2
IC604	E-2
IC605	G-6
IC606	G-6
IC607	F-7
TRANSISTOR	
Q002	F-8
Q005	D-10
Q006	D-10
Q110	C-9
Q112	A-9
Q118	C-10
Q119	C-10
Q120	D-11
Q121	C-8
Q131	C-7
Q132	C-7
Q300	H-10
Q301	F-9
Q302	H-11
Q303	H-11
Q304	G-10
Q305	G-10
Q306	H-11
Q308	F-10
Q401	B-7
Q402	B-7
Q601	D-3
Q602	F-5
Q604	H-6
Q605	H-6
Q606	F-6
Q607	F-6
Q608	E-7
Q609	F-6
Q610	H-7
Q611	H-6
Q612	F-6
Q613	F-5
Q801	C-6
Q802	C-4
Q804	D-5
Q805	D-6
ADJUSTING ELEMENT	
CT102	B-8
CT103	C-10
CT104	C-8
RV101	B-9
RV801	B-1
DIODE	
D002	F-8

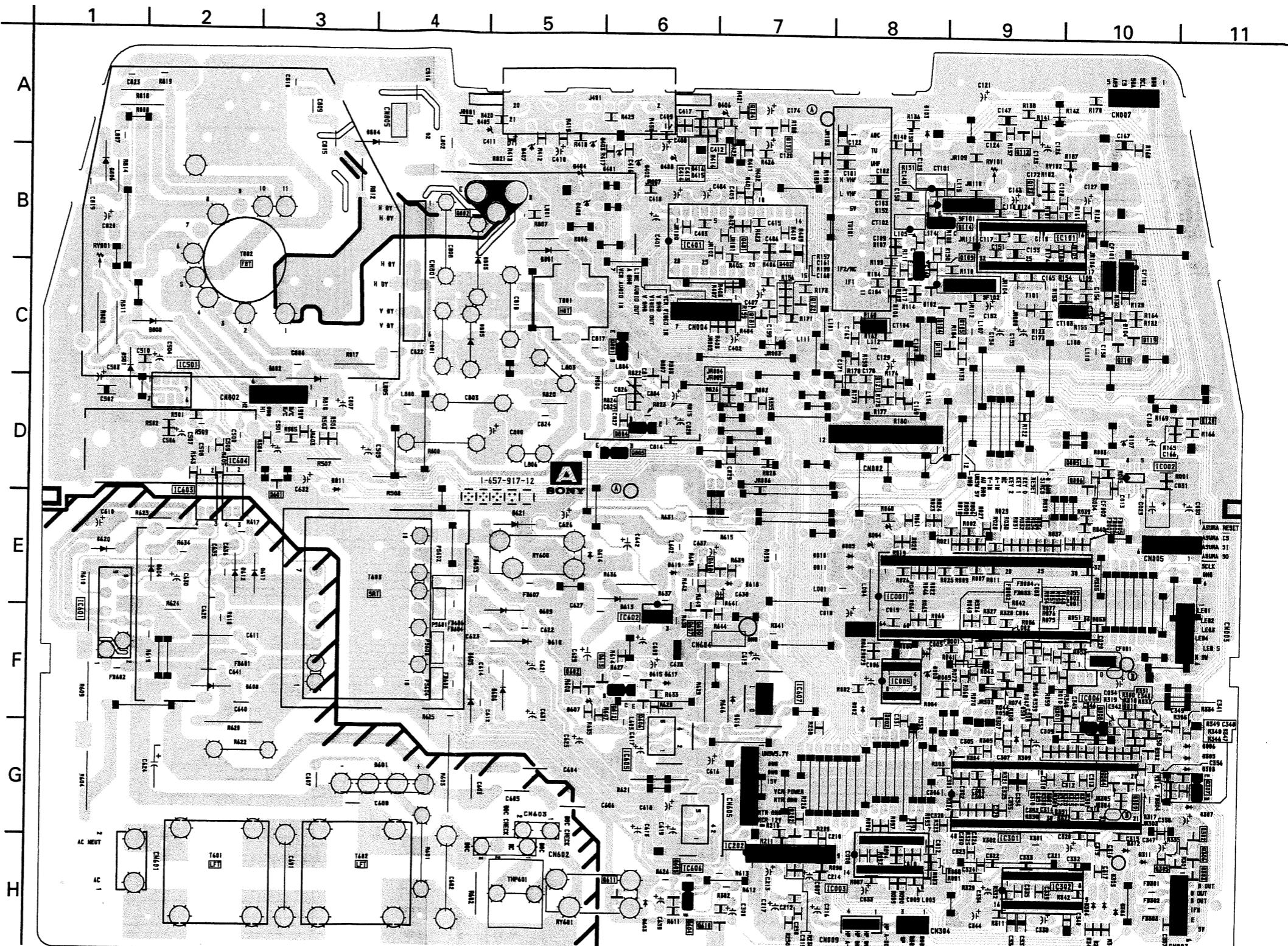
A

[TUNER, A/V SW, VIDEO PROCESS, PLL CONTROL DISP]

- A BOARD -

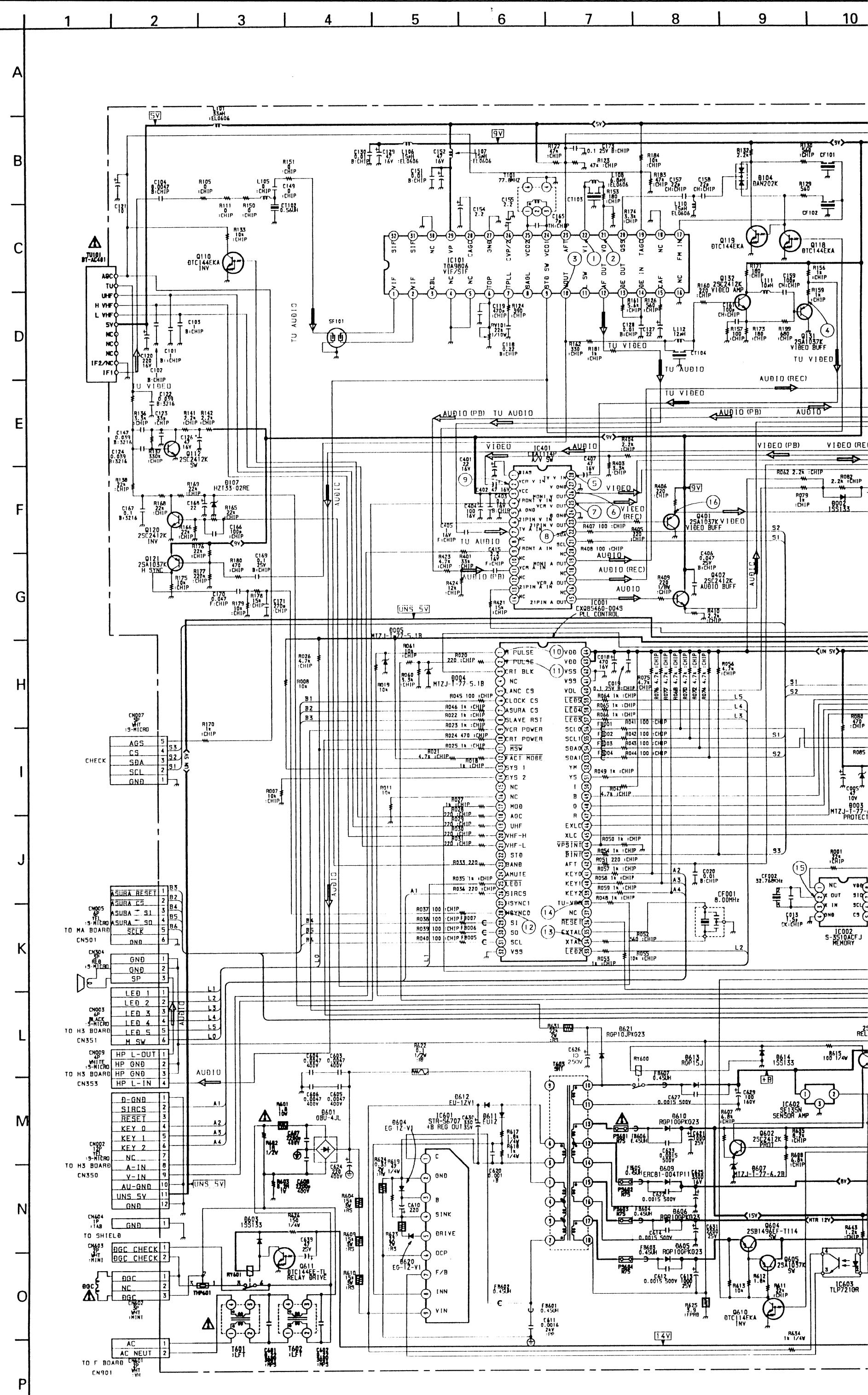
A BOARD

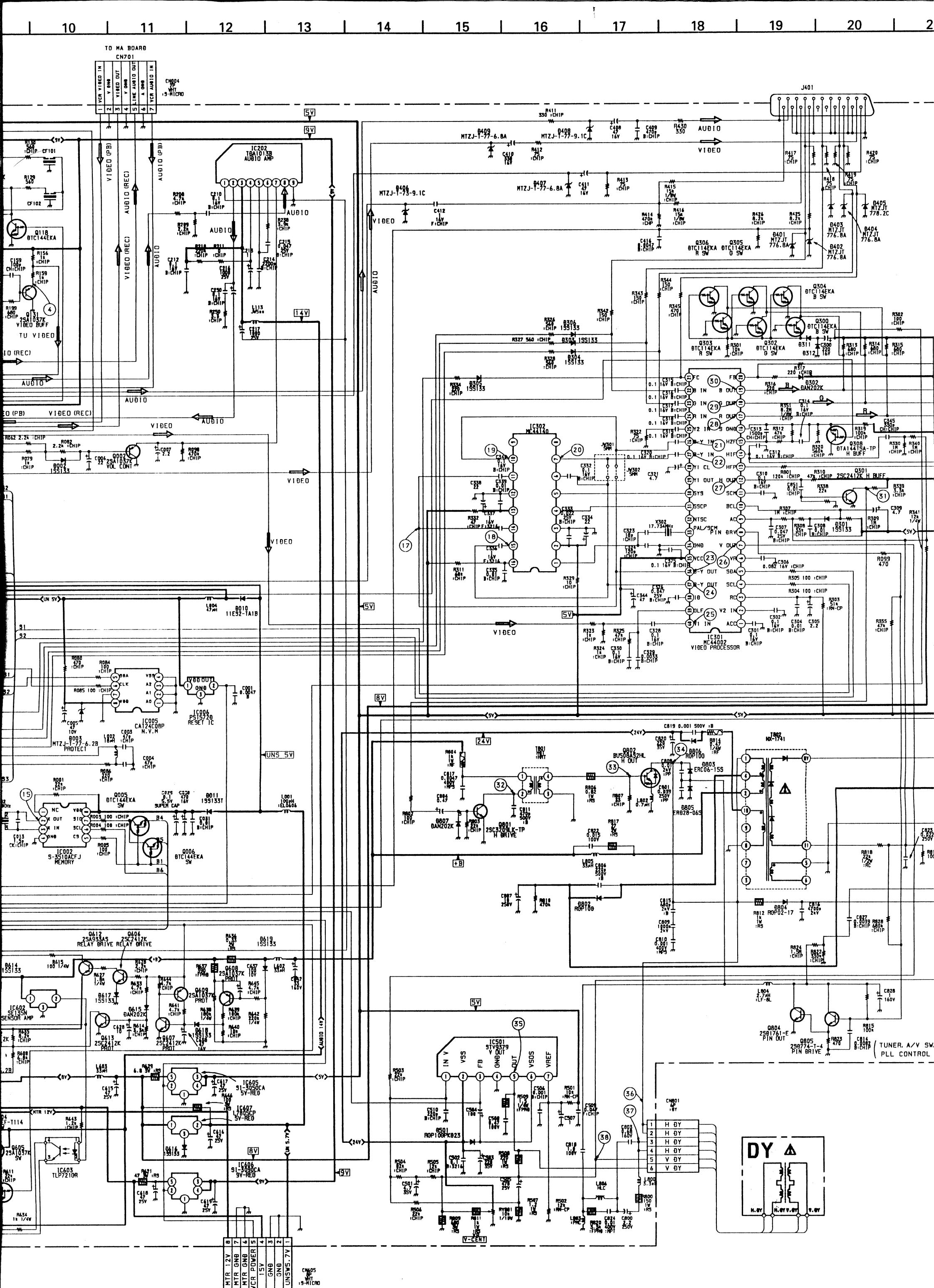
IC	
IC001	E-9
IC002	D-10
IC005	F-8
IC006	F-10
IC101	B-9
IC202	H-7
IC301	G-9
IC302	H-9
IC401	B-6
IC501	D-2
IC601	F-1
IC602	F-6
IC603	E-2
IC604	E-2
IC605	G-6
IC606	G-6
IC607	F-7
TRANSISTOR	
Q002	F-8
Q005	D-10
Q006	D-10
Q110	C-9
Q112	A-9
Q118	C-10
Q119	C-10
Q120	D-11
Q121	C-8
Q131	C-7
Q132	C-7
Q300	H-10
Q301	F-9
Q302	H-11
Q303	H-11
Q304	G-10
Q305	G-10
Q306	H-11
Q401	F-10
Q402	B-7
Q601	D-3
Q602	F-5
Q604	H-6
Q605	H-6
Q606	F-6
Q607	F-6
Q608	E-7
Q609	F-6
Q610	H-7
Q611	H-6
Q612	F-6
Q613	F-5
Q801	C-6
Q802	C-4
Q804	D-5
Q805	D-6
ADJUSTING ELEMENT	
CT102	B-8
CT103	C-10
CT104	C-8
RV101	B-9
RV801	B-1
DIODE	
D002	F-8

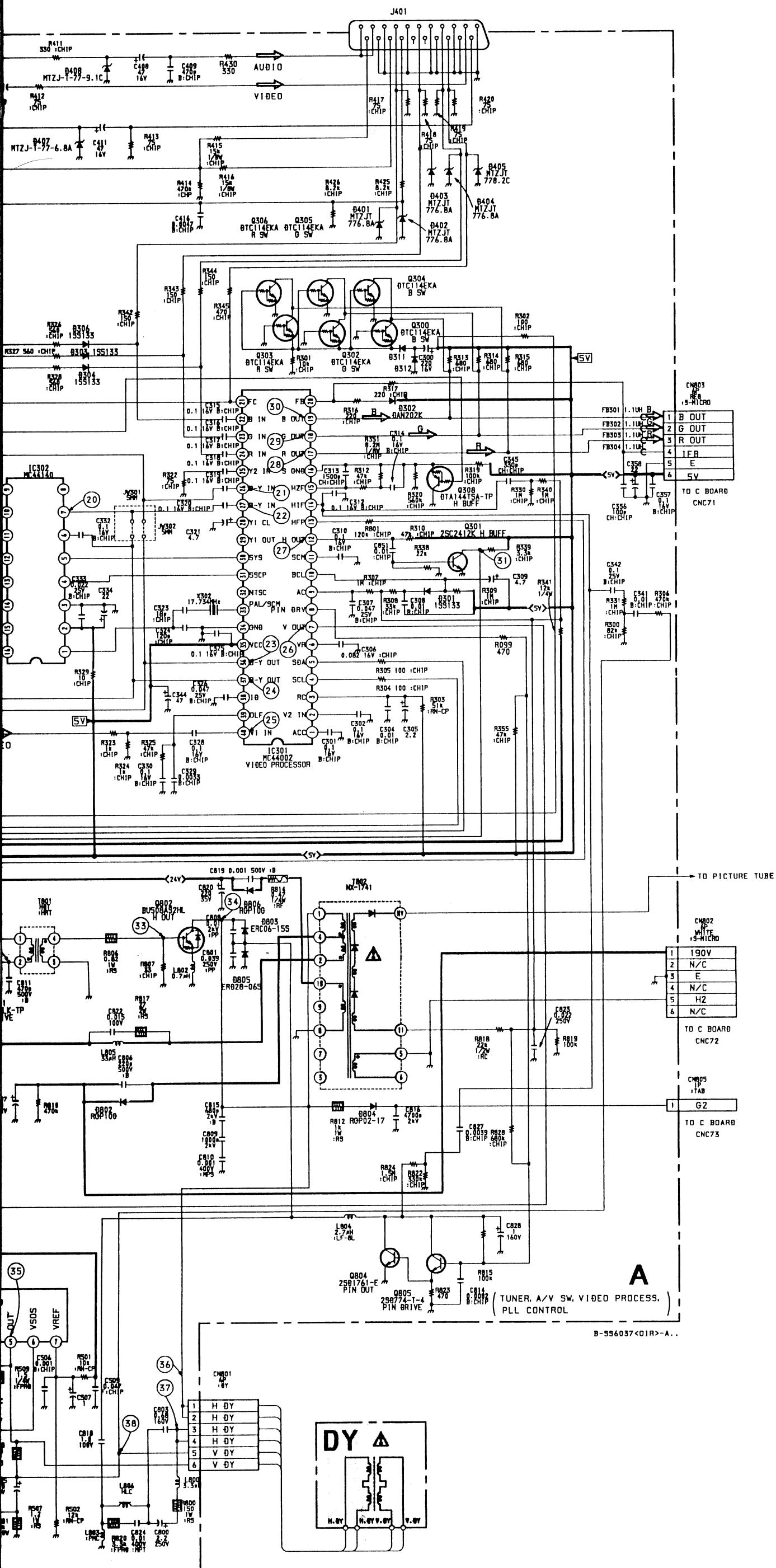


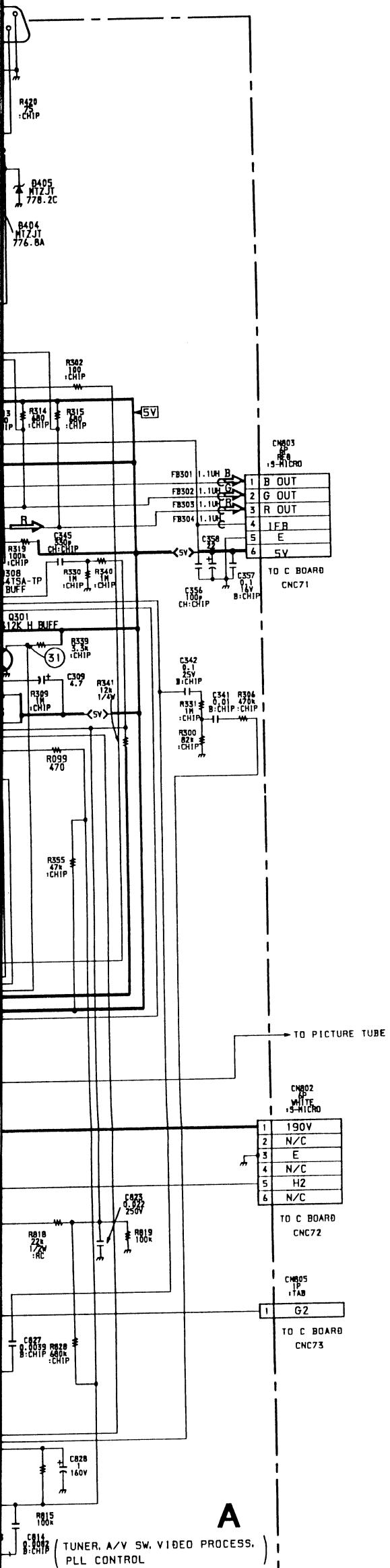
NOTE:

The circuit indicated as left contains high voltage of over 600 Vp-p. Care must be paid to prevent an electric shock in inspection or repairing.





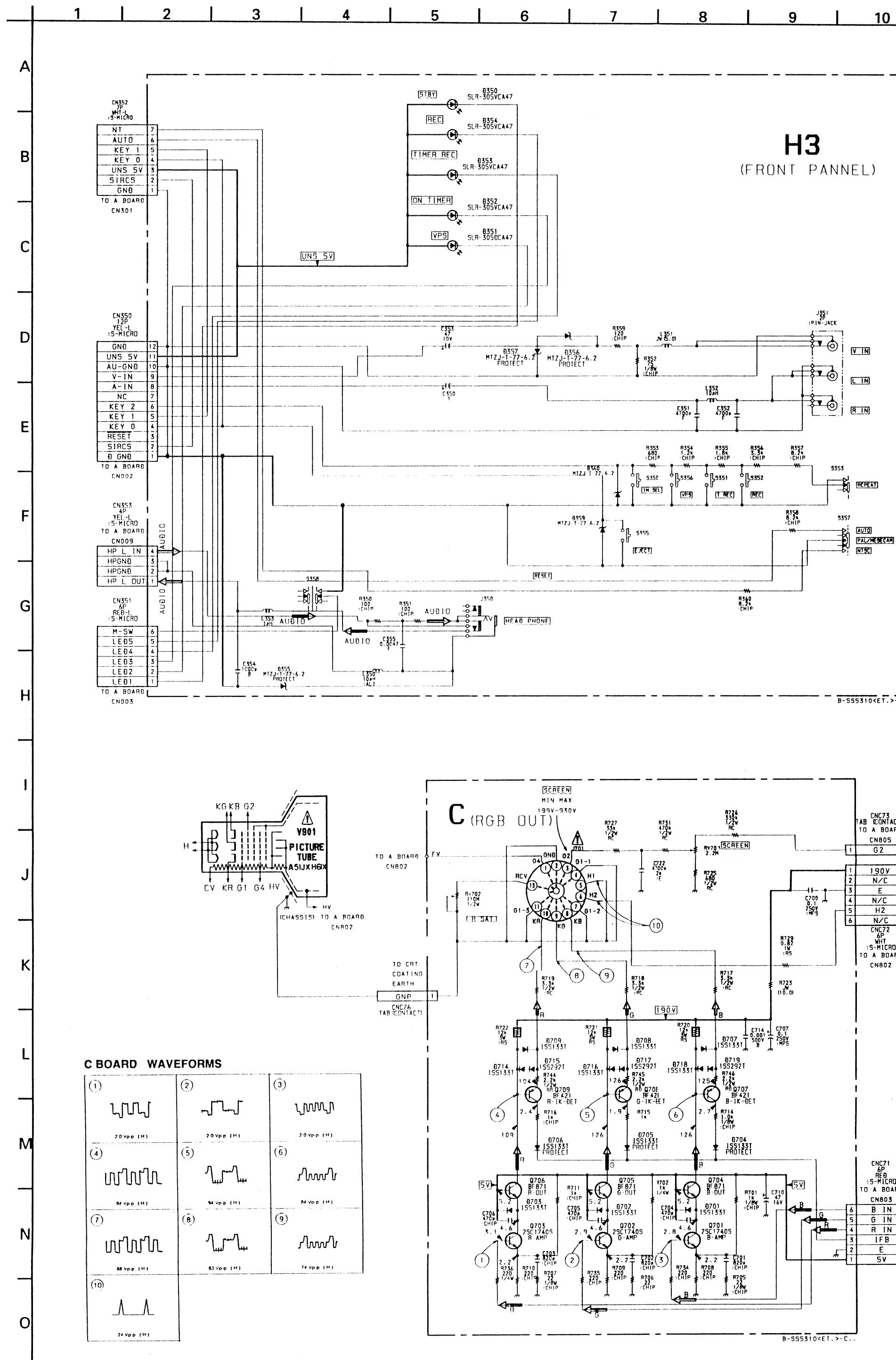




B-556037<DIR>-A..

A BOARD

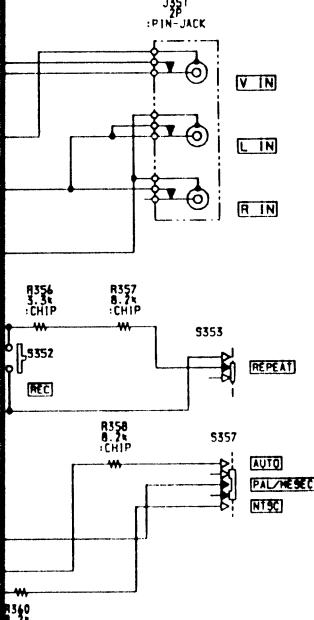
REF.	Pin No.	VOLTAGE	REF.	Pin No.	VOLTAGE	REF.	Pin No.	VOLTAGE
	(1)	0.4	IC006	(2)	4.8		(39)	1.8
	(2)	0.3		(1)	3.4		(40)	2.2
	(3)	0		(2)	3.4		(41)	2.7
	(4)	0		(3)	0	IC301	(42)	2.7
	(5)	0.2		(4)	1.1		(43)	1.0
	(6)	4.5		(5)	2.7		(44)	2.4
	(7)	4.9		(6)	0		(45)	3.0
	(8)	4.9		(7)	0		(46)	1.7
	(9)	4.2		(8)	2.3		(47)	1.4
	(10)	0		(9)	0		(48)	0.2
	(11)	1.0		(10)	2.5		(49)	1.5
	(12)	5.0		(11)	2.5		(50)	1.5
	(13)	0		(12)	2.5		(51)	1.5
	(14)	0		(13)	2.5		(52)	1.2
	(15)	*	IC101	(14)	2.3		(53)	1.2
	(16)	1.0		(15)	2.8		(54)	1.7
	(17)	0		(16)	1.7		(55)	4.8
	(18)	2.1		(17)	2.1		(56)	4.8
	(19)	0		(18)	2.1		(57)	4.7
	(20)	4.8		(19)	1.8		(58)	4.8
	(21)	4.7		(20)	2.9		(59)	4.8
	(22)	4.7		(21)	0		(60)	2.8
	(23)	0		(22)	2.8		(61)	4.8
	(24)	4.9		(23)	2.5		(62)	4.8
	(25)	5.0		(24)	3.1		(63)	4.9
	(26)	0.4		(25)	0		(64)	4.8
	(27)	0.3		(26)	0		(65)	4.8
	(28)	0.3		(27)	0		(66)	4.9
	(29)	0.3		(28)	0		(67)	4.9
	(30)	0.3		(29)	0		(68)	4.9
	(31)	0.3		(30)	0		(69)	4.9
	(32)	0.3		(31)	0		(70)	4.9
	(33)	0.3		(32)	0		(71)	4.9
	(34)	0.3		(33)	0		(72)	4.9
	(35)	0.3		(34)	0		(73)	4.9
	(36)	0.3		(35)	0		(74)	4.9
	(37)	0.3		(36)	0		(75)	4.9
	(38)	0.3		(37)	0		(76)	4.9
	(39)	0.3		(38)	0		(77)	4.9
	(40)	0.3		(39)	0		(78)	4.9
	(41)	0.3		(40)	0		(79)	4.9
	(42)	0.3		(41)	0		(80)	4.9
	(43)	0.3		(42)	0		(81)	4.9
	(44)	0.3		(43)	0		(82)	4.9
	(45)	0.3		(44)	0		(83)	4.9
	(46)	0.3		(45)	0		(84)	4.9
	(47)	0.3		(46)	0		(85)	4.9
	(48)	0.3		(47)	0		(86)	4.9
	(49)	0.3		(48)	0		(87)	4.9
	(50)	0.3		(49)	0		(88)	4.9
	(51)	0.3		(50)	0		(89)	4.9
	(52)	0.3		(51)	0		(90)	4.9
	(53)	0.3		(52)	0		(91)	4.9
	(54)	0.3		(53)	0		(92)	4.9
	(55)	0.3		(54)	0		(93)	4.9
	(56)	0.3		(55)	0		(94)	4.9
	(57)	0.3		(56)	0		(95)	4.9
	(58)	0.3		(57)	0		(96)	4.9
	(59)	0.3		(58)	0		(97)	4.9
	(60)	0.3		(59)	0		(98)	4.9
	(61)	0.3		(60)	0		(99)	4.9
	(62)	0.3		(61)	0		(100)	4.9
	(63)	0.3		(62)	0		(101)	4.9
	(64)	0.3		(63)	0		(102)	4.9
	(65)	0.3		(64)	0		(103)	4.9
	(66)	0.3		(65)	0		(104)	4.9
	(67)	0.3		(66)	0		(105)	4.9
	(68)	0.3		(67)	0		(106)	4.9
	(69)	0.3		(68)	0		(107)	4.9
	(70)	0.3		(69)	0		(108)	4.9
	(71)	0.3		(70)	0		(109)	4.9
	(72)	0.3		(71)	0		(110)	4.9
	(73)	0.3		(72)	0		(111)	4.9
	(74)	0.3		(73)	0		(112)	4.9
	(75)	0.3		(74)	0		(113)	4.9
	(76)	0.3		(75)	0		(114)	4.9
	(77)	0.3		(76)	0		(115)	4.9
	(78)	0.3		(77)	0		(116)	4.9
	(79)	0.3		(78)	0		(117)	4.9
	(80)	0.3		(79)	0		(118)	4.9
	(81)	0.3		(80)	0		(119)	4.9
	(82)	0.3		(81)	0		(120)	4.9
	(83)	0.3		(82)	0		(121)	4.9
	(84)	0.3		(83)	0		(122)	4.9
	(85)	0.3		(84)	0		(123)	4.9
	(86)	0.3		(85)	0		(124)	4.9
	(87)	0.3		(86)	0		(125)	4.9
	(88)	0.3		(87)	0		(126)	4.9
	(89)	0.3		(88)	0		(127)	4.9
	(90)	0.3		(89)	0		(128)	4.9
	(91)	0.3		(90)	0		(129)	4.9
	(92)	0.3		(91)	0		(130)	4.9
	(93)	0.3		(92)	0		(131)	4.9
	(94)	0.3		(93)	0		(132)	4.9
	(95)	0.3		(94)	0		(133)	4.9
	(96)	0.3		(95)	0		(134)	4.9
	(97)	0.3		(96)	0		(135)	4.9
	(98)	0.3		(97)	0		(136)	4.9
	(99)	0.3		(98)	0		(137)	4.9
	(100)	0.3		(99)	0		(138)	4.9
	(101)	0.3		(100)	0		(139)	4.9
	(102)	0.3		(101)	0		(140)	4.9
	(103)	0.3		(102)	0		(141)	4.9
	(104)	0.3		(103)	0		(142)	4.9
	(105)	0.3		(104)	0		(143)	4.9
	(106)	0.3		(105)	0		(144)	4.9
	(107)	0.3		(106)	0		(145)	4.9



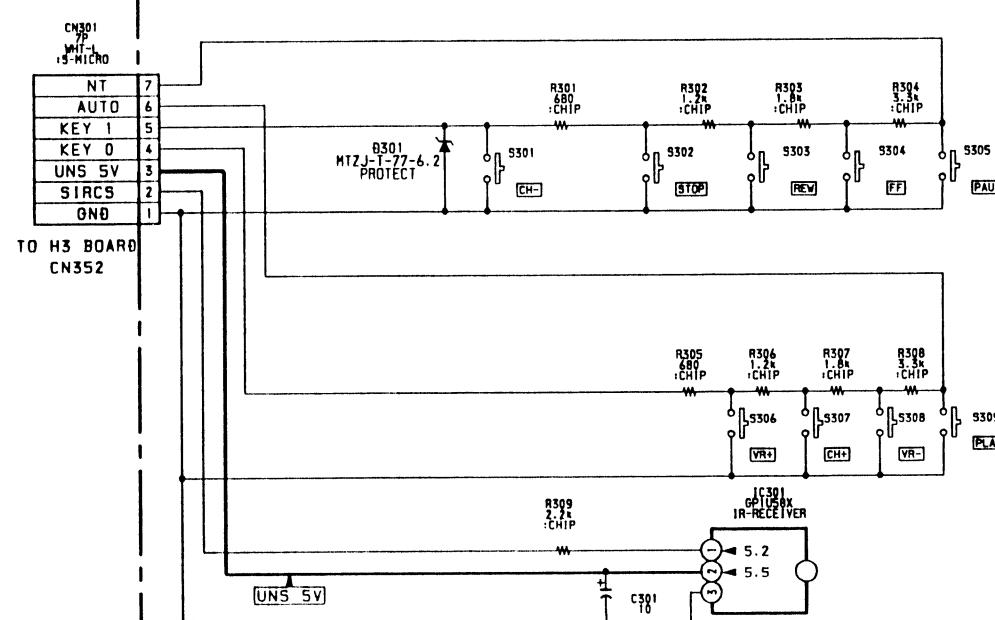
9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20

H3

(FRONT PANNEL)



B-555310<ET.>-H3.



H4
(FUNCTION SW)

H4 BOARD

REF.	Pin No.	VOLTAGE
IC301	①	5.2

B-555310<ET.>-H4.

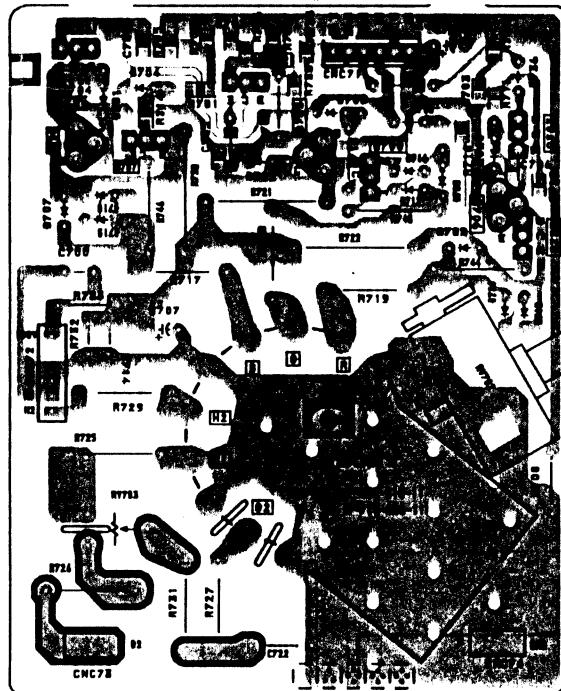
C [RGB OUT]

F [AC IN]

H3 [VIDEO/AUDIO IN, SIRCS RECEIVER]

H4 [FUNCTION SW]

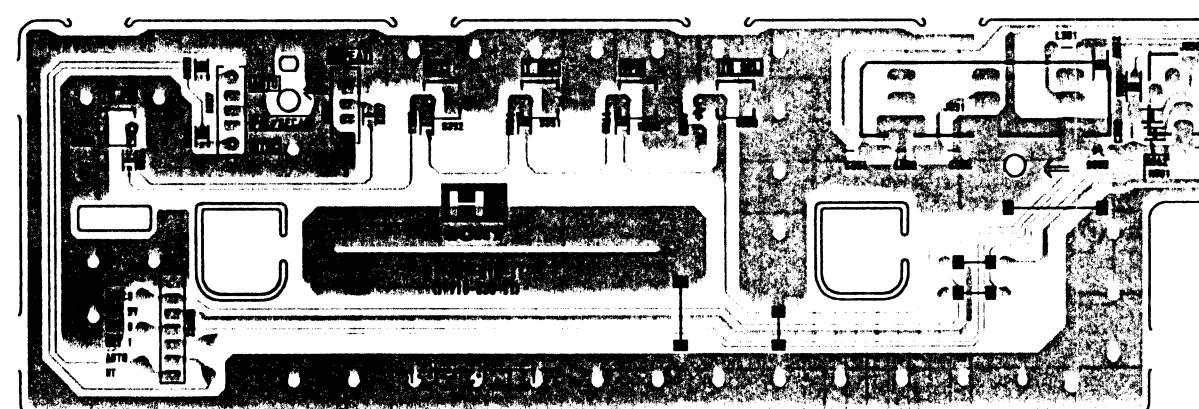
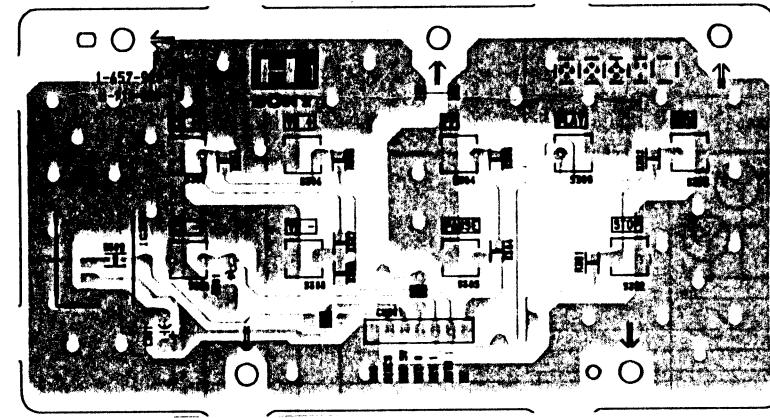
- C BOARD -



C BOARD

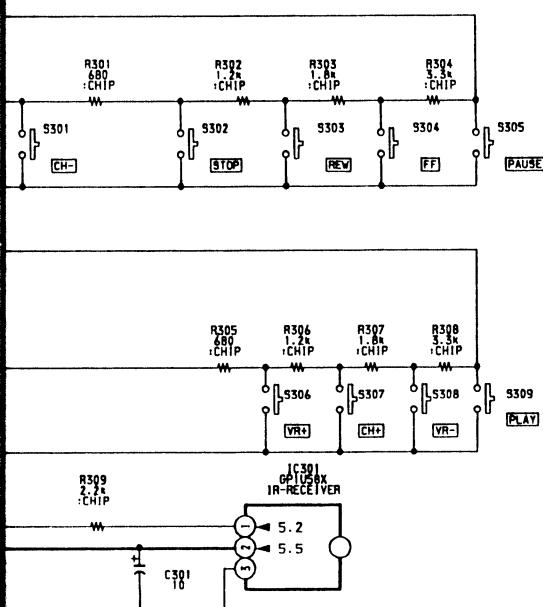
REF.	VOLTAGE
Q701	E 2.2
	C 4.6
	B 2.8
Q702	E 2.2
	C 4.6
	B 2.9
Q703	E 2.2
	C 4.6
	B 3.1
Q704	E 4.6
	C 126.0
Q705	E 4.6
	C 126.0
Q706	E 4.6
	C 109.0
Q707	E 125.0
	C 2.7
	B 126.0
Q708	E 126.0
	C 1.9
	B 126.0
Q709	E 104.0
	C 2.4
	B 109.0

- H4 BOARD -



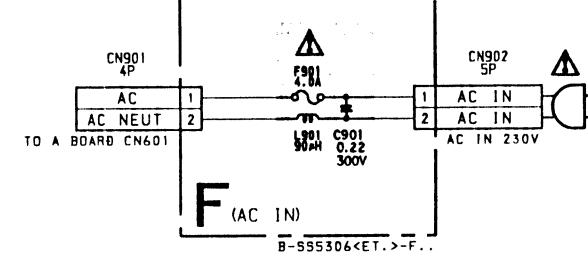
4 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22

H4
(FUNCTION SW)



H4 BOARD

REF.	Pin No.	VOLTAGE
IC301	①	5.2



B-555310<ET.>-H4.

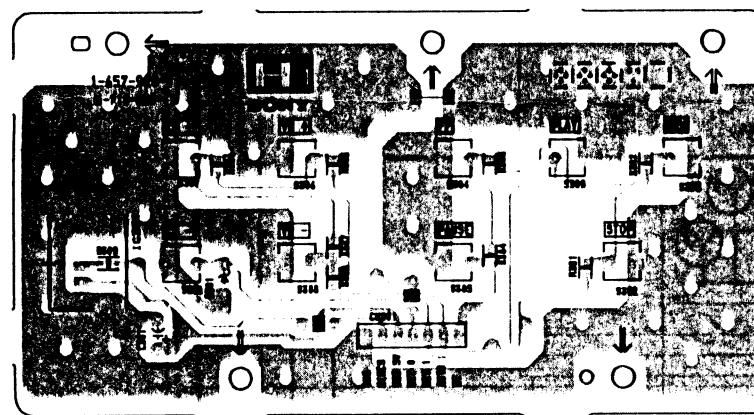
H3

[VIDEO/AUDIO IN, SIRCS RECEIVER]

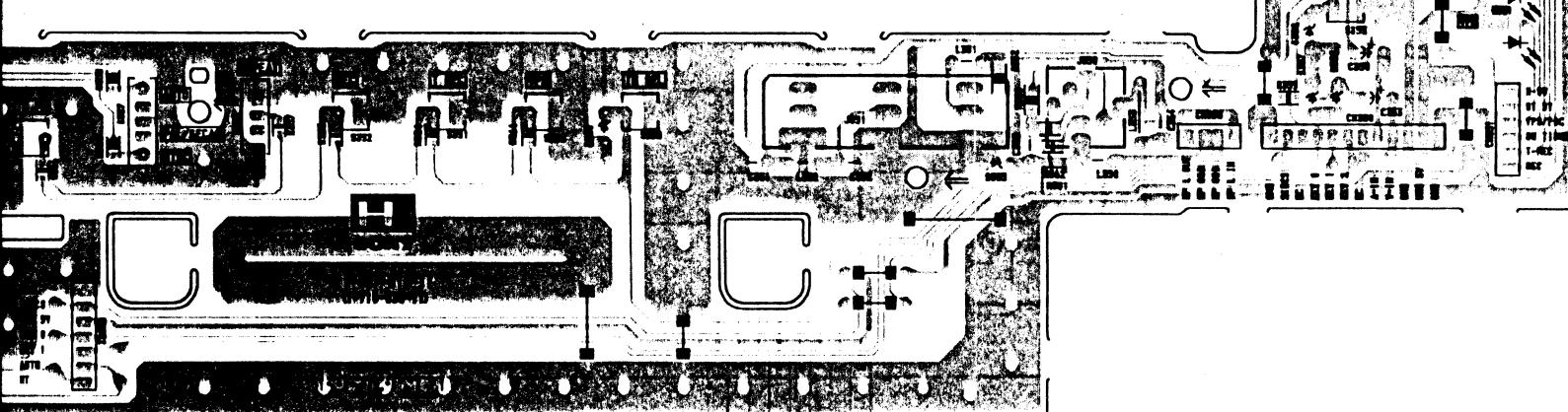
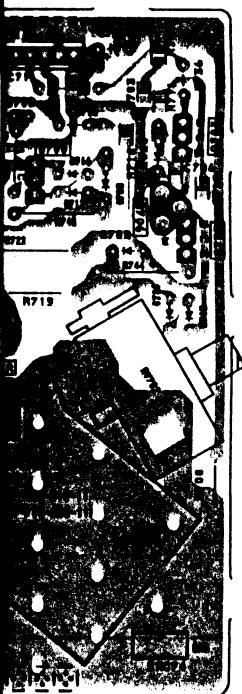
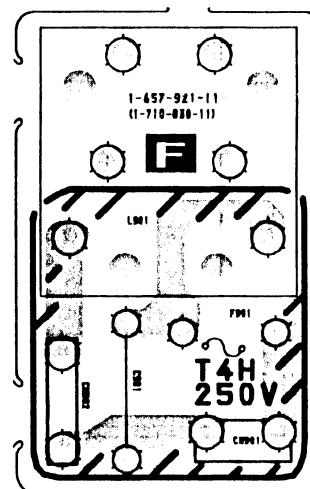
H4

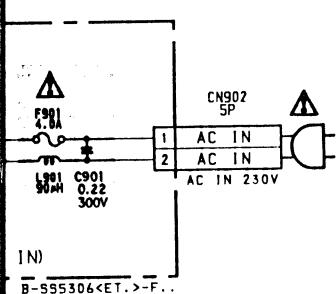
[FUNCTION SW]

- H4 BOARD -



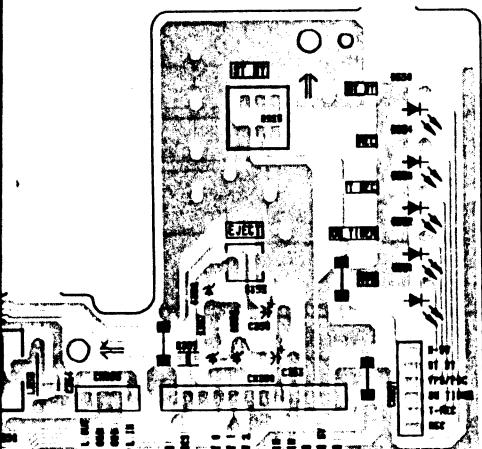
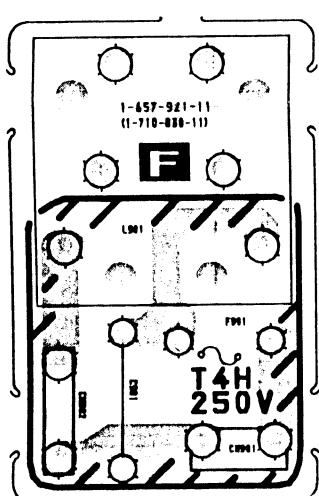
- F BOARD -





VIDEO section

- F BOARD -



SECTION 2

CIRCUIT ADJUSTMENTS

Necessary items and indications for total adjustment of electric circuit of this unit will be described in this chapter.

[Instruments to be Used]

- 1) Color TV
- 2) Signal or dual trace type oscilloscope, band more than 30 MHz, delay, as provided.
- 3) Frequency counter (4 digits or more)
- 4) PAL pattern generator
- 5) Digital voltmeter
- 6) Audio level meter
- 7) Audio generator
- 8) Attenuator
- 9) Distortion meter
- 10) Alignment tape
Part code : H7099052H (MH-2)

[Connection]

Unless otherwise specified, connect and adjust the measurement equipment as follows.

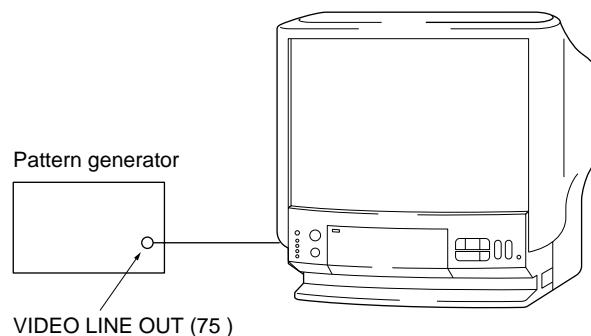


Fig. 2-1.

[Set-up for adjustment]

The video signal from the pattern generator is used as adjustment signal for electrical adjustment. This video signal should meet the requirement. Connect the oscilloscope to the video input terminal on the MF 1 board and make sure that the amplitudes of sync signal of video signal, video portion and burst signal are flat at approximately 0.3, 0.7 and 0.3 V, respectively, and that the level ratio of the burst signal and "red signal" are 0.30 : 0.66, Fig. 2-2. shows video signals (color bars) used in adjusting the electrical adjustment.

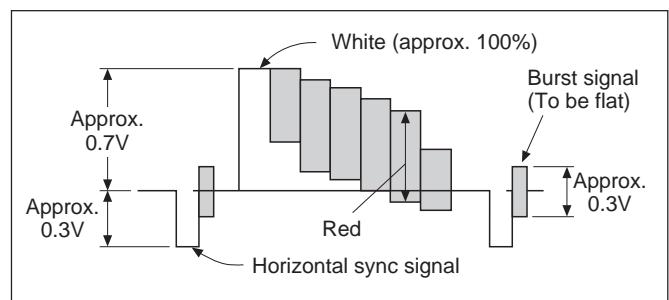


Fig. 2-2

Alignment Tape (MH-2)

	Time	Video signal	Audio signal
1	10 minutes	Starir-step	6 kHz
2	5 minutes	-	3 kHz
3	10 minutes	Color bar	1 kHz
4	3 minutes	RF sweep	-

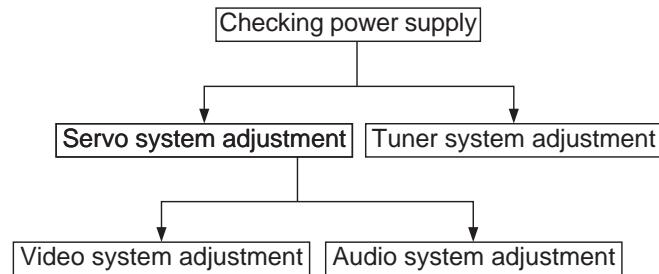
[Specified Input/Output Level Impedance]

Input/Output terminal

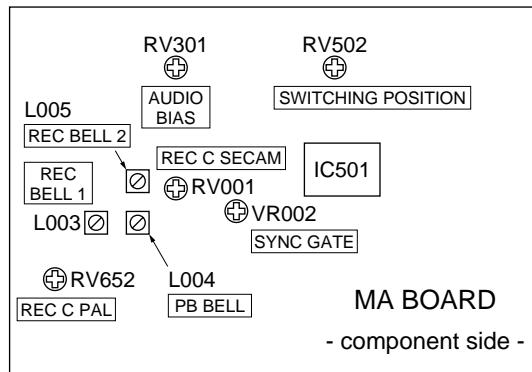
Video input	Pin jack Input signal : 1Vp-p, 75Ω, unbalanced Sync negative
VIDEO LINE OUT	Pin jack Output signal : 1Vp-p, 75Ω, unbalanced Sync negative
AUDIO LINE IN	Pin jack Input level : -7.5dBs (0dBs=0.775Vrms) Input impedance : More than 47kΩ
AUDIO LINE OUT	Pin jack Specified output : -7.5dBs At 47kΩ loaded. Load impedance : More than 10kΩ

[Adjustment Sequence]

Make the electrical adjustment in the following sequences.



2-1. MA BOARD ADJUSTMENT



1. Recording bias adjustment

Mode	Recording and playback (SP mode)
Signal	400Hz, -27.5dBs 7kHz, -27.5dBs
Measurement Equipment	Audio level meter
Adjustment Element	RV301
Specified Value	0 ± 2dB

Note : Tape path adjustment should have been completed.

- 1) Input signal of 400Hz, -27.5dBs.
- 2) Make recording.
- 3) Set the AUDIO LINE IN signal to 7kHz, -27.5dBs and make recording.
- 4) Playback a recorded portion and measure output levels at 400Hz and 7kHz.
- 5) Confirm that the 7kHz playback signal level is within a range of $0 \pm 2\text{dB}$ against the 400Hz playback signal level. When beyond this range, adjust RV301 and repeat the step (1) through (5).

2-2. SERVO SYSTEM ADJUSTMENT

Switching position adjustment (MA board)

Mode	Playback
Signal	Alignment tape, Stair step
Measurement Point	CH : Pin ⑫ of CN802 (MA) CH : Pin ④ of CN801 (MA)
Measurement Equipment	Oscilloscope
Adjustment Element	RV502
Specified Value	$416 \pm 32 \mu\text{sec}$ (6.5 ± 0.5 H)

Adjustment Method :

- 1) Press the tracking buttons □ and ▲ at a time.
- 2) Adjust for $416 \pm 32 \mu\text{sec}$ (6.5 ± 0.5 H) using RV502.

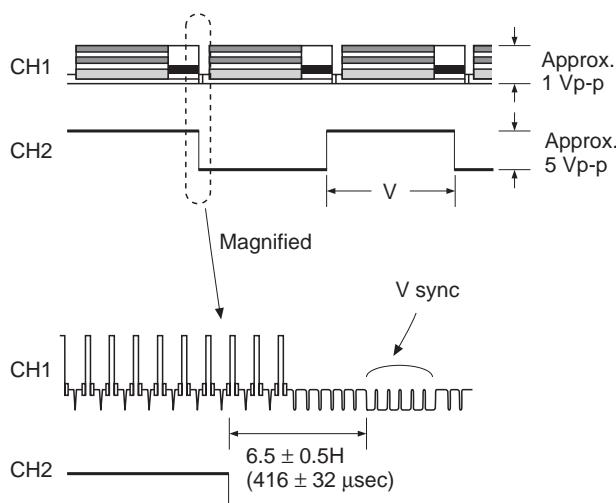


Fig. 2-3 Switching position adjustment

2-3. AUDIO SYSTEM ADJUSTMENTS

[Connection]

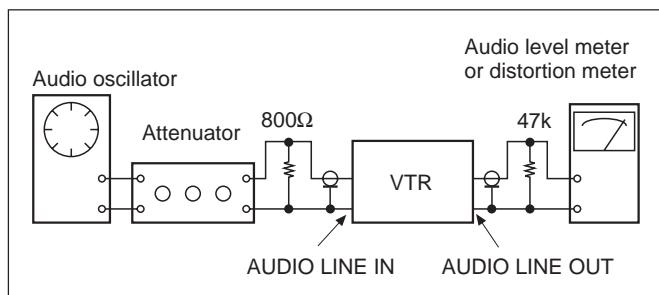


Fig. 2-4.

• Make adjustment in the SP mode.

[Adjustment Spquences]

- 1) ACE head adjustment
... See "VHS MECHANICAL ADJUSTMENTMANUAL MANUAL IV".
- 2) Playback output level check.

1. ACE head adjustment

See "VHS MECHANICAL ADJUSTMENTMANUAL MANUAL IV".

2. Playback output level check

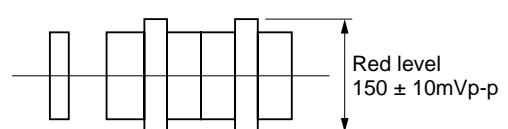
Mode	Playback
Signal	Alignment tape, 1 kHz (color bar) portion
Measurement Point	AUDIO LINE OUT terminal
Measurement Equipment	Audio level meter
Specified Value	-7.5 ± 2 dBs

Confirmation Method :

- 1) Playback 1kHz portion and make sure that AUDIO LINE OUT signal level is -7.5 ± 2 dBs.

2-4. REC CHROMA ADJUSTMENT

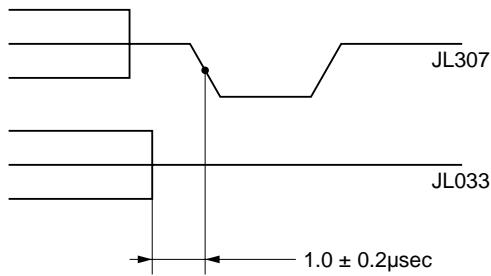
- 1) Input the PAL COLOUR BAR signal (2Vp-p).
- 2) Connect Oscilloscope to JL022.
- 3) Adjust for 150 ± 10 mVp-p (Red level) using RV652 (EE mode).



B MODEL ONLY ADJUSTMENT

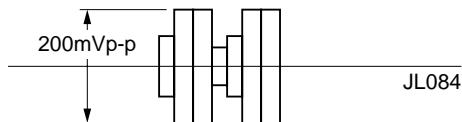
2-5. SECAM SYNC GATE ADJUSTMENT (EE Mode)

- 1) Input the SECAM COLOUR BAR (2Vp-p).
- 2) Connect Oscilloscope to JL307 and JL033.
- 3) Adjust for $1.0 \pm 0.2 \mu\text{sec}$ using VR002.



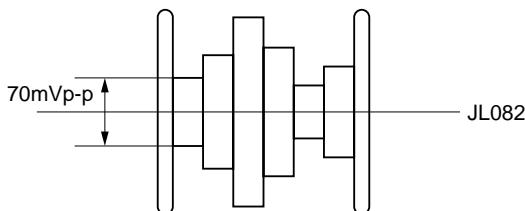
2-6. REC BELL ADJUSTMENT (1) (EE Mode)

- 1) Input the SECAM COLOUR BAR (2Vp-p).
- 2) Connect Oscilloscope to JL084.
- 3) Adjust for 200mVp-p using L003.



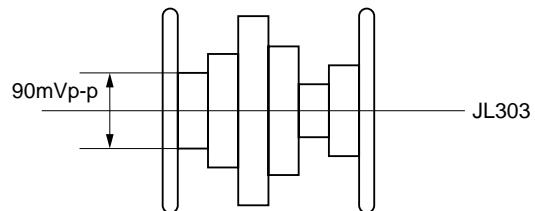
2-7. REC BELL ADJUSTMENT (2) (EE Mode)

- 1) Input the SECAM COLOUR BAR (2Vp-p).
- 2) Connect Oscilloscope to JL082.
- 3) Adjust for 70mVp-p using L005.



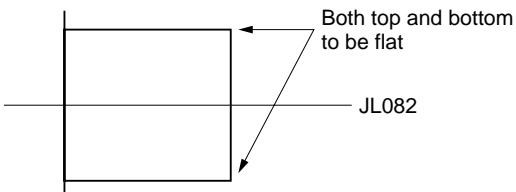
2-8. SECAM REC CHROMA ADJUSTMENT (EE Mode)

- 1) Input the SECAM COLOUR BAR (2Vp-p).
- 2) Connect Oscilloscope to JL303.
- 3) Adjust for 90mVp-p using VR001.



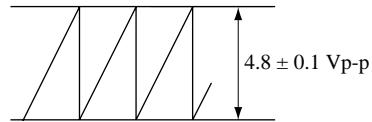
2-9. PB BELL ADJUSTMENT (PB Mode)

- 1) Connect between GND and JL304.
- 2) Input the SECAM RF signal (400mVp-p).
- 3) Connect Oscilloscope to JL082
- 4) Adjust for both top and bottom to be flat using L004.



2-10. SECAM DET ADJUSTMENT (REC/PB Mode)

- 1) Input the SECAM COLOR BAR.
- 2) Connect Oscilloscope to pin! of IC051.
- 3) Adjust for $4.8 \pm 0.1 \text{ Vp-p}$ using RV051.



3-1. SYSTEM CONTROL-VIDEO BLOCK INTERFACE (MA BOARD IC501)

Signal	Pin No.	I/O	STOP	FF	REW	TAPE THREADING	TAPE UNTHREADING	PB	PB · PAUSE	SLOW	X2	PICTURE SEARCH		REC	REC · PAUSE
												CUE	REVIEW		
V-PB	IC501 ⑨⁹	O	H	H	H	H	H	L	L	L	L	L	L	H	H
RF SW P (SW25)	IC501 ①	O	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1
Q VD/V MUTE	IC501 ②	O	L	L	L	L	L	*2	*3	*3	*3	*3	*3	L	L
NA-SP	IC501 ⑨¹	O	*4	*4	*4	*4	*4	*5	*5	*5	*5	*5	*5	*4	*4
LP	IC501 ⑫	O	*8	*8	*8	*8	*8	*5	*5	*5	*5	*5	*5	*8	*8
REC·P	IC501 ⑤	O	L	L	L	L	L	L	L	L	L	L	L	L	H
REC	IC501 ⑨⁶	O	L	L	L	L	L	L	L	L	L	L	L	H	H
V SYNC	IC501 ⑯⁶	I	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6
OSD MUTE	IC501 ⑦¹	O	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7
CTL REC	IC501 ⑨⁴	O	L	L	L	L	L	L	L	L	L	L	L	H	L
NTSC	IC501 ⑰⁷	O	L	L	L	L	L	L	L	L	L	L	L	L	L
JOG	IC501 ⑨⁷	O	L	L	L	L	L	L	H	H	H	H	H	L	L
CRC SETTEI	IC501 ⑩⁶	O	L	L	L	L	L	L	L	L	L	L	L	*9	*9

*1. 25Hz 50% duty pulse synchronizing with drum rotation.

*2. Normally "L". "H" when the video signal is not detected.

*3. V period "H" pulse.

*4. "L" in the SP mode. Selected according to the recording mode.

*5. Selected according to the tape recording mode.

*6. Composite sync signal (positive).

*7. "H" when menu screen or gray back screen.

*8. Selected by REC mode, "L" in the SP mode.

*9. "H" while APC is set.

Mode Signal	SP	LP	EP
SP ⑨¹	L	H	H
LP ⑰⁷	L	L	H

3-2. SYSTEM CONTROL-SERVO PERIPHERAL CIRCUIT INTERFACE (MA BOARD IC501)

Signal	Pin No.	I/O	STOP	FF	REW	TAPE THREADING	TAPE UNTHREADING	PB	PB . PAUSE	SLOW	X2	PICTURE SEARCH		REC	REC . PAUSE	PB INDEX WRT/ERS
												CUE	REVIEW			
REC CTL	IC501 ⑦	O	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	
CAP STOP	IC501 ⑧	O (O.D)	L	HI-Z (O.D)	HI-Z (O.D)	HI-Z (O.D)	HI-Z (O.D)	HI-Z (O.D)	L	*3	HI-Z (O.D)	HI-Z (O.D)	HI-Z (O.D)	HI-Z (O.D)	HI-Z (O.D)	
STEP PLS	IC501 ⑨	O	L	L	L	L	L	L	L	*2	L	L	L	L	L	
CTL REC	IC501 ⑩	O	L	L	L	L	L	L	L	L	L	L	L	H	L	H
CTL INDEX	IC501 ⑪	O	L	L	L	L	L	L	L	L	L	L	L	L	L	H
PB CTL	IC501 ⑫	I	H	*6	*6				*1	H/L	*2	*6	*6	*1	H	
DRUM PG	IC501 ⑬	I	*4	*7	*7	*5	*5	*7	*7	*7	*7	*7	*7	*7	*7	
DRUM FG	IC501 ⑭	I	*4	*8	*8	*5	*5	*8	*8	*8	*8	*8	*8	*8	*8	
CAP FG	IC501 ⑮	I	H/L	*6	*6	*5	*5	*6	H/L	*9	*6	*6	*6	*6	H/L	
CAP DA	IC501 ⑯	O	*10	*10	*10	*10	*10	*11	*10	*10	*11	*11	*11	*11	*10	
DRUM DA	IC501 ⑰	O	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	
CTL STEP	IC501 ⑱	O	L	L	L	L	L	L	L	*13	L	L	L	L	L	

*1. 25Hz pulse.

*2. Pulse in tape running.

*3. Reverse logic pulse of STEP PLS.

*4. "L" when drum rotation stops.

*5. Unstable period pulse.

*6. Pulse of period proportionate to tape speed.

*7. 25Hz pulse.

*8. 300Hz pulse.

*9. Pulse in tape running.

*10. Approx. 2 msec. period "H" or "L" pulse.

*11. Approx. 1.5 msec. period "H" or "L" pulse.

*12. Approx. 3 msec. period "H" or "L" pulse.

*13. "H" in FWD direction and STEP drive.

3-3. SYSTEM CONTROL-MECHANISM BLOCK INTERFACE (MA BOARD IC501)

Signal	Pin No.	I/O	EJECTED	CASSETTE	CASSETTE	TAPE	TAPE	STOP	FF	REW	PB	PB · PAUSE	SLOW	X2	PICTURE SEARCH		REC	REC · PAUSE
				LOADING	UNLOADING	THREADING	UNTHREADING								CUE	REVIEW		
CAM LOAD	IC501 ⑯	O	L	H	L	H	L	L	L	L	L	L	L	L	L	L	L	L
CAM UNLOAD	IC501 ⑰	O	L	L	H	L	H	L	L	L	L	L	L	L	L	L	L	L
CAM 12V	IC501 ⑳	O		H	L	H	L											
MODE 1	IC501 ⑮	I	H	L	L	*1	*1	H	H	H	H	H	H	H	H	L	H	H
MODE 2	IC501 ⑯	I	L	L	L	*1	*1	L	L	L	H	H	H	H	H	H	H	H
MODE 3	IC501 ⑭	I	L	L	L	*1	*1	H	H	H	L	H	H	L	L	H	L	H
MODE 4	IC501 ⑮	I	L	H	H	*1	*1	H	L	L	L	L	L	L	L	L	L	L
REC PRF	IC501 ⑯	I	L	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2
T REEL FG	IC501 ⑯	I	H/L	H/L	H/L	H/L	H/L	H/L	*3	*3	*3	H/L	*3	*3	*3	*3	*3	H/L
S REEL FG	IC501 ⑬	I	H/L	H/L	H/L	*3	*3	H/L	*3	*3	H/L	*3	*3	*3	*3	*3	*3	H/L
END LED	IC501 ⑯	O (O.D.)	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4
CAP TRQ 1	IC501 ⑯	O (O.D.)																
CAP TRQ 2	IC501 ⑬	O (O.D.)											L	*1				L
CAP TRQ 3	IC501 ⑧	O (O.D.)							H	H						H	H	
CAP STOP	IC501 ⑯	O (O.D.)	L	L	L	H	H	L	H	H	H	L	*5	H	H	H	H	L
CAP RVS	IC501 ⑯	O	H			L	H	H/L	L	H	L	L	L/*5	L	L	H	L	L
CAP DA	IC501 ⑬	O																
T SENS	IC501 ⑯	I	*4	*4	*4	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7
S SENS	IC501 ⑯	I	*4	*4	*4	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7

*1. Uncertainty

*2. "L" when the erasing protection tab is bent, "H" when not bent.

*3. Pulse of period proportionate to reel rotationg speed.

*4. Approx. 2 msec. period "H" pulse.

*5. Pulse in tape running.

*6. "L" only in tape running and when CAP RVS is "H".

*7. Nomally "L". 2 msec. poriod "H" pulse when tape top or tape end is detected.

3-4. SYSTEM CONTROL-SYSTEM CONTROL PERIPHERAL CIRCUIT INTERFACE (MA BOARD IC501)

Signal	Pin No.	I/O	I/O Level		
ASURA RESET	IC501 ④〇	I	Normally "H". "L" when service interruption is detected or restored.		
ASURA CS	IC501 ④四	I	Chip select signal from the timer microprocessor. V period "L" pulse.		
SI BUS	IC501 ④五	I	Serial communication data from the timer microprocessor. V period "L" pulse.		
SO BUS	IC501 ④六	O	Serial communication data to the timer microprocessor. V period "L" pulse.		
S CLK	IC501 ④七	I	Serial communication clock with the timer microprocessor. V period "L" pulse.		

3-5. SYSTEM CONTROL-AUDIO BLOCK INTERFACE (MA BOARD IC501)

Signal	Pin No.	I/O	STOP	FF	REW	TAPE THREADING	TAPE UNTHREADING	PB	PB · PAUSE	SLOW	X2	PICTURE SEARCH		REC	REC · PAUSE	
												CUE	REVIEW			
AF ENVELOP	IC501 ⑥一	I	AF RF envelope signal input pin for auto tracking.													
NA PB	IC501 ⑧三	O	L	L	L	L	L	H	H	H	H	H	H	L	L	
A MUTE	IC501 ⑦七	O (O.D.)	L	L	L	L	L	*1	H	H	H	H	H	L	L	
NA SP	IC501 ⑨一	O	*2	*2	*2	*2	*2	*3	*3	*3	*3	*3	*2	*2	*2	
NA REC.P	IC501 ⑪一	O	L	L	L	L	L	L	L	L	L	L	H	L		
*4 AF REC.P	IC501 ④一	O	L	L	L	L	L	L	L	L	L	L	H	L		
*4 AF SWP	IC501 ⑩〇	O	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	
AF SW POSITION	IC501 ⑤一	I	Input pin for AF switching position adjustment.													
*4 FULL ERS	IC501 ⑥六	O (O.D.)	H	H	H	H	H	H	H	H	H	H	L	H		

*1. 25Hz 50% duty pulse approximately 5 msec. delayed from RF SW P.

*2. Selected according to SP/LP selector. "L" in the SP mode, "H" in the LP mode.

*3. Selected according to the tape recording mode. "L" in the SP mode, "H" in the LP mode.

*4. Not used.

3-6. SYSTEM CONTROL-RF MODULATOR, INPUT SELECTION BLOCK INTERFACE (MA BOARD IC501)

Signal	Pin No.	I/O	I/O Level		
			TUNER	LINE 1	LINE 2
LINE 1	IC501 ⑦九	O	L	H	L
*1 LINE 2	IC501 ⑧二	O	L	L	H

*1. Not used.

3-7. SERVO/SYSTEM CONTROL MICROPROCESSOR (MA BOARD IC501) PORT FUNCTION DESCRIPTION

Pin No.	Signal	I/O	Function
1	RF SWP	O	RF switching pulse.
2	QVD	O	False VD.
3	QHD ENBL	O	False HD voltage level control.
4	AF REC P	O	Hi-Fi recording control. (Not used. (open))
5	REC P	O	Recording signal.
6	FE ON	O	Flying erase. (Not used. (open))
7	REC CTL	I/O	REC CTL.
8	CAP TRQ3	O	Capstan current control.
*1	RENTAL	I/O	H : poor tape.
10	EDIT	O	EDIT control. (Not used. (open))
11	NA REC P	I/O	Normal audio recording mode. H : recording mode.
12	LP	O	H in LP mode.
13	CAMLOAD	I/O	
14	CAMUNLOAD	I/O	Loading motor rotaing direction control.
15	C IN/REC PRF	O	Cassette IN and erasing protection tad detection switch input.
16	HEAD CONT	I/O	Head change control.
17	T SENS	I	Tape top sensor input.
18	S SENS	I	Tape end sensor input.
19	MOD CONT	O	Modulator power supply ON/OFF control. (Not used. (open))
20	AV CONT	O	ON/OFF control. (Not used. (open))
21	ME SECAM	I/O	H : ME SECAM (Not used. (open))
22	SECAM	I/O	H : SECAM (Not used. (open))
23	VPB	O	Reverse VPB, H : P-OFF. (Not used. (open))
24	STEP PLS	O	Step pulse, H : Capstan step driving.
25	PAL 60	O	H : HTSC on PAL TV.
26	3.58 NTSC	O	Tuner 'audio selection signal. H : 3.58 XTAL.
27	NTSC	O	H : PAL.
28	E TAPE	O	H : HG tape. (Not used. (open))
29	BIL	O	H output : BS bilingual mode. (Not used. (open))
30	C+CONT	O	CANAL + control. (Not used. (open))
31	CAM 12V	O	CAM motor voltage change.
32	END LED	O	Top/end detection lamp lighting control.
33	CAP TRQ 2	O	Capstan current control signal 2. L : FF/REW to STOP.
34	CAP TRQ 1	O	Capstan current control signal 1. L : SLOW speed down.

Pin No.	Signal	I/O	Function
35	PAL	O	H : PAL (Not used. (open))
36	FULL ERS	O	Full erase control. (Not used. (open))
37	A MUTE	O	Audio mute. H : mute.
38	CAP STOP	O	Capstan stop reversal. L : Capstan stop.
39	MP	I	Fixed to L.
40	ASURA RESET	I	System reset input.
41	VSS		GND.
42	XTAL		
43	EXTAL		System clock 16MHz.
44	ASURA CS	I	Chip select signal.
45	SI BUS	I	
46	SO BUS	O	Serial communication signal.
47	S CLK	I	
48	DEST 2	I	Destination judge input. Fixed to L.
49	AD	I	AD input for APC 2.
50	NTPB-SW	I	358/443/onpal input.
51	AFSW POS	I	Hi-Fi switching position adjustment.
52	A VSS		GND.
53	A VREF		AD port reference input. (UNSW 5V)
54	A VDD		UNSW 5V.
55	MODE 4	I	Cam encorder data 4.
56	MODE 3	I	Cam encorder data 3.
57	MODE 2	I	Cam encorder data 2.
58	MODE 1	I	Cam encorder data 1.
59	DEW	I	Condensation sensor input. "H" when condensation.
60	RF ENV	I	Video playback signal envelope.
61	AF ENV	I	Hi-Fi audio playback signal envelope.
62	RF SW POS	I	Video head switching position adjustment.
63	S REEL FG	I	S side reel FG input.
64	T REEL FG	I	T side reel FG input.
65	NT JUDGE	I	4.43/3.58 judge input.
66	V SYNC	I	Composite sync input.
67	PB CTL	I	Servo CTL input.
68	DRM PG	I	Drum PG input.

Continued on next page.

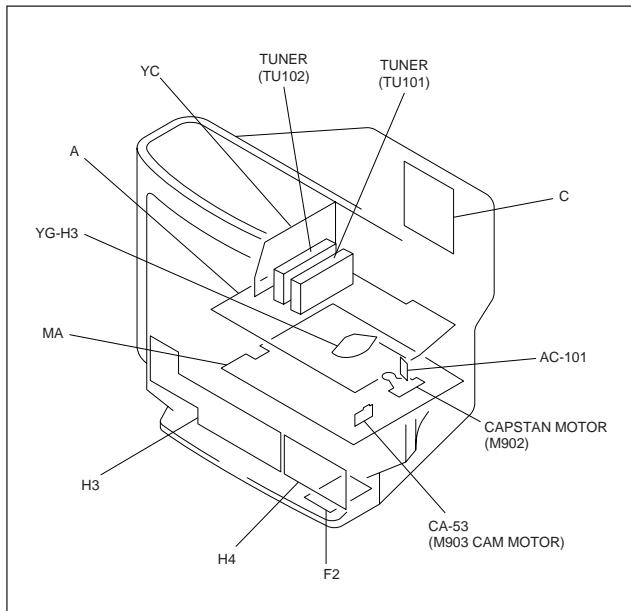
Pin No.	Signal	I/O	Function
69	DRM FG	I	Drum FG input.
70	CAP FG	I	Capstan FG input.
71	OSD MUTE	O	Video output mute signal. H : Gray back. (Not used. (open))
72	CAP RVS	O	Capstan reverse control. H : Reverse.
73	CAP DA	O	Capstan D/A output.
74	DRM DA	O	Drum D/A output.
75	EP	O	L : EP (Not used. (open))
76	ORC SETTEI	O	H : ORC measure.
77	VD CTL	I	CTL counter input. (Fixed to "H".)
78	DEST 1	I	Destination judge input.
79	LINE 1	O	Input selection control signal.
80	SO 1	I/O	Expanded port data.
81	CLK 1	I/O	Expanded port clock.
82	LINE 2	O	Input selection control signal. (Not used. (open))
83	NAPB	O	Audio output control signal. H : Normal audio playback.
84	PWM	O	PWM output for APC2. (Not used. (open))
85	E TAPE	O	L : Good tape.
86	N.C.	I	Not used. (open)
87	TX		Not used. (open)
88	VSS		GND.
89	VDD		UNSW 5V.
90	VDD		UNSW 5V.
91	NA SP	O	For normal audio. L : SP mode.
92	ENV GAIN	O	Video envelope gain change.
93	CTL STEP	O	CTL amp, STEP operation control.
94	CTL REC	O	H : CTL write.
95	V PB	O	Video system playback mode reversal. L : Playback.
96	CTL INDEX	O	Index control signal rewrite. H : Erase.
97	JOG	O	H : JOG
98	REC	O	Head amplifier recording power supply.
99	SP	O	L : SP mode.
100	AF SWP	O	AF switching pulse. (Not used. (open))

*1. Selected by tape condition.

tape signal	good	normal	poor
RENTAL ⑨	L	L	H
E TAPE ⑧	L	H	H

*1

4-2. CIRCUIT BOARDS LOCATION



Reference information

RESISTOR	: RN	METAL FILM
	: RC	SOLID
	: FPRD	NONFRAMMABLE CARBON
	: FUSE	NONFLAMMABLE FUSIBLE
	: RW	NONFLAMMABLE WIREWOUND
	: RS	NONFLAMMABLE METAL OXIDE
	: RB	NONFLAMMABLE CEMENT
	▲	ADJUSTMENT RESISTOR
COIL	: LF-8L	MICRO INDUCTOR
CAPACITOR	: TA	TANTALUM
	: PS	STYROL
	: PP	POLYPROPYLENE
	: PT	MYLAR
	: MPS	METALIZED POLYESTER
	: MPP	METALIZED POLYPROPYLENE
	: ALB	BIPOLAR
	: ALT	HIGH TEMPERATURE
	: ALR	HIGH RIPPLE

4-3. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

Note:

- All capacitors are in μF unless otherwise noted. pF : $\mu\mu\text{F}$ 50WV or less are not indicated except for electrolytics and tantalums.
- All electrolytics are in 50V unless otherwise specified.
- All resistors are in ohms.
 $\text{k}\Omega = 1000\Omega$, $\text{M}\Omega = 1000\text{k}\Omega$
- Indication of resistance, which does not have one for rating electrical power, is as follows.

Pitch: 5 mm
Rating electrical power: 1/4W

- 1/4W in resistance, 1/10W and 1/8W in chip resistance.
- : nonflammable resistor.
- : fusible resistor.
- ▲ : internal component.
- : panel designation and adjustment for repair.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- Readings are taken with a color-bar signal input.
- Readings are taken with a $10\text{M}\Omega$ digital multimeter.
- Voltages are dc with respect to ground unless otherwise noted.
- Voltage variations may be noted due to normal production tolerances.
- All voltages are in V.

△ : Measurement impossibility.

- : B + line.
- : B - line.

(Actual measured value may be different).

- : signal path. (RF)
- Circle numbers are waveform reference.
- Measurement mode.
no mark : REC/PB mode
() : REC mode

Note: The symbol □ display is on the component side.

The components identified by shading and mark △ are critical for safety. Replace only with part number specified.

The symbol — indicate fast operating fuse. Replace only with fuse of same rating as marked.

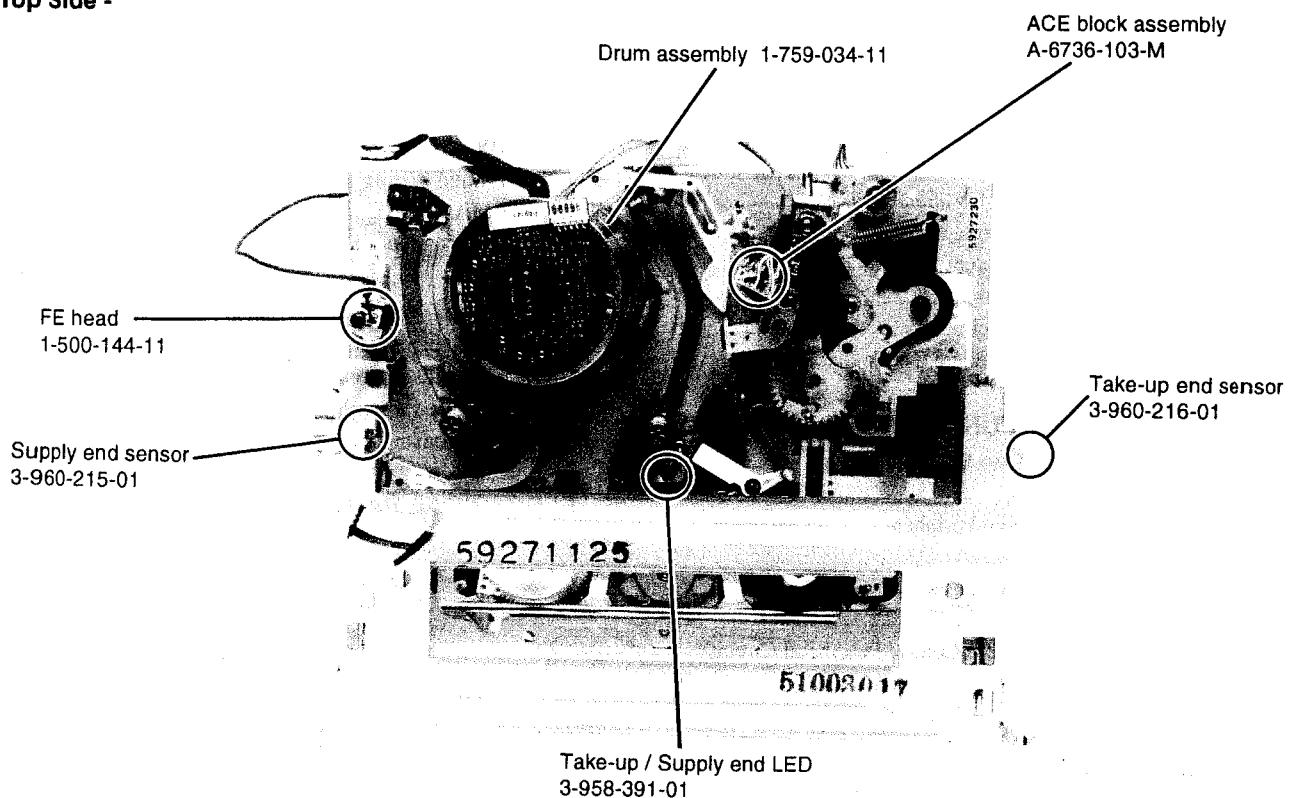
Note: Les composants identifiés par un trame et une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Le symbole — indique une fusible a action rapide. Doit etre remplacée par une fusible de même valeur, comme maque.

SECTION 1 GENERAL

1-1. INTERNAL VIEWS

- Top Side -



- Bottom Side -

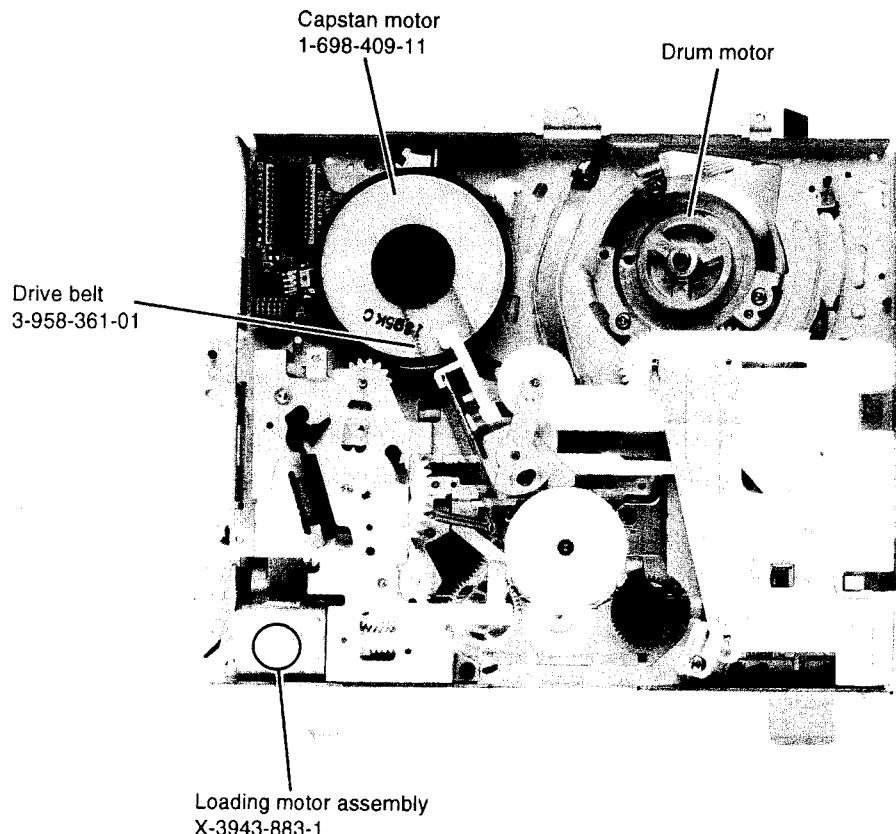


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SECTION 2

CIRCUIT ADJUSTMENTS

Necessary items and indications for total adjustment of electric circuit of this unit will be described in this chapter.

[Instruments to be Used]

- 1) Color TV
- 2) Signal or dual trace type oscilloscope, band more than 30 MHz, delay, as provided.
- 3) Frequency counter (4 digits or more)
- 4) PAL pattern generator
- 5) Digital voltmeter
- 6) Audio level meter
- 7) Audio generator
- 8) Attenuator
- 9) Distortion meter
- 10) Alignment tape
Part code : H7099052H (MH-2)

[Connection]

Unless otherwise specified, connect and adjust the measurement equipment as follows.

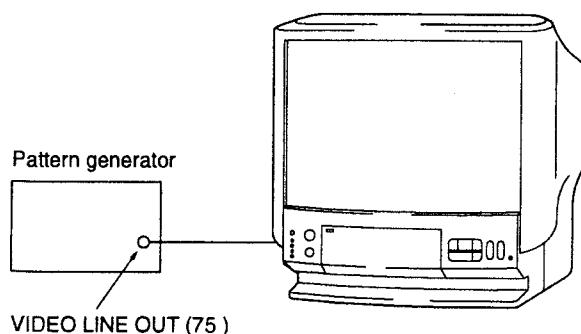


Fig. 2-1.

[Set-up for adjustment]

The video signal from the pattern generator is used as adjustment signal for electrical adjustment. This video signal should meet the requirement. Connect the oscilloscope to the video input terminal on the MF 1 board and make sure that the amplitudes of sync signal of video signal, video portion and burst signal are flat at approximately 0.3, 0.7 and 0.3 V, respectively, and that the level ratio of the burst signal and "red signal" are 0.30 : 0.66, Fig. 2-2. shows video signals (color bars) used in adjusting the electrical adjustment.

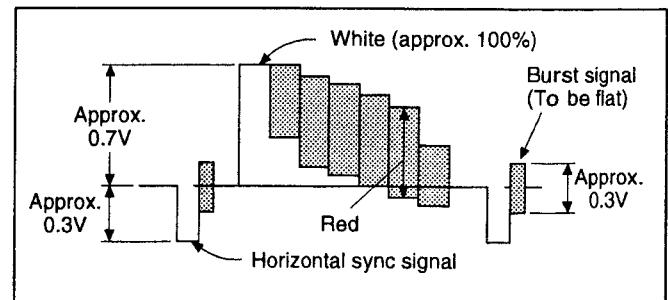


Fig. 2-2

Alignment Tape (MH-2)

	Time	Video signal	Audio signal
1	10 minutes	Starir-step	6 kHz
2	5 minutes	-	3 kHz
3	10 minutes	Color bar	1 kHz
4	3 minutes	RF sweep	-

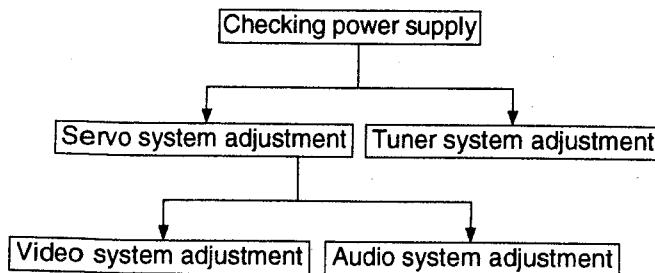
[Specified Input/Output Level Impedance]

Input/Output terminal

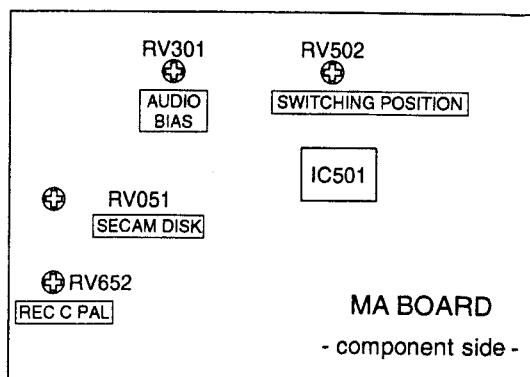
Video input	Pin jack
	Input signal : 1Vp-p, 75Ω, unbalanced Sync negative
VIDEO LINE OUT	Pin jack
	Output signal : 1Vp-p, 75Ω, unbalanced Sync negative
AUDIO LINE IN	Pin jack
	Input level : -7.5dBs (0dBs=0.775Vrms)
	Input impedance : More than 47kΩ
AUDIO LINE OUT	Pin jack
	Specified output : -7.5dBs At 47kΩ loaded. Load impedance : More than 10kΩ

[Adjustment Sequence]

Make the electrical adjustment in the following sequences.



2-1. MA BOARD ADJUSTMENT



1. Recording bias adjustment

Mode	Recording and playback (SP mode)
Signal	400Hz, -27.5dBs 7kHz, -27.5dBs
Measurement Equipment	Audio level meter
Adjustment Element	RV301
Specified Value	0 ± 2dB

Note : Tape path adjustment should have been completed.

- 1) Input signal of 400Hz, -27.5dBs.
- 2) Make recording.
- 3) Set the AUDIO LINE IN signal to 7kHz, -27.5dBs and make recording.
- 4) Playback a recorded portion and measure output levels at 400Hz and 7kHz.
- 5) Confirm that the 7kHz playback signal level is within a range of 0 ± 2dB against the 400Hz playback signal level. When beyond this range, adjust RV301 and repeat the step (1) through (5).

2-2. SERVO SYSTEM ADJUSTMENT

Switching position adjustment (MA board)

Mode	Playback
Signal	Alignment tape, Stair step
Measurement Point	CH : Pin ⑫ of CN802 (MA) CH : Pin ④ of CN801 (MA)
Measurement Equipment	Oscilloscope
Adjustment Element	RV502
Specified Value	$416 \pm 32 \mu\text{sec}$ (6.5 ± 0.5 H)

Adjustment Method :

- 1) Press the tracking buttons □ and ▲ at a time.
- 2) Adjust for $416 \pm 32 \mu\text{sec}$ (6.5 ± 0.5 H) using RV502.

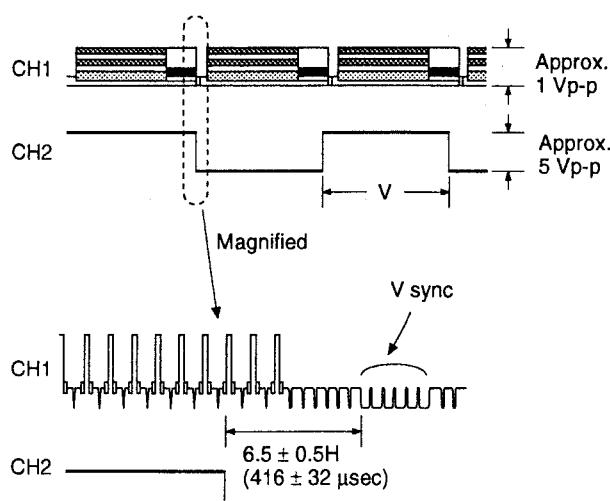


Fig. 2-3 Switching position adjustment

2-3. AUDIO SYSTEM ADJUSTMENTS

[Connection]

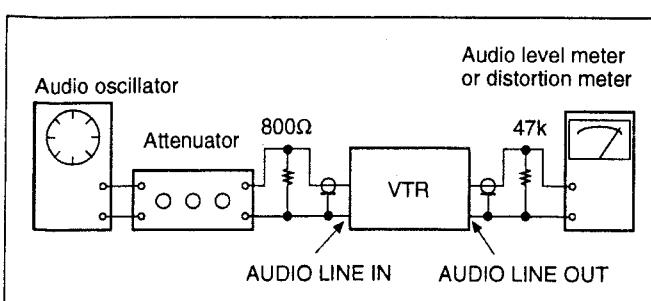


Fig. 2-4.

• Make adjustment in the SP mode.

[Adjustment Spquences]

- 1) ACE head adjustment
... See "VHS MECHANICAL ADJUSTMENTMANUAL MANUAL IV".
- 2) Playback output level check.

1. ACE head adjustment

See "VHS MECHANICAL ADJUSTMENTMANUAL MANUAL IV".

2. Playback output level check

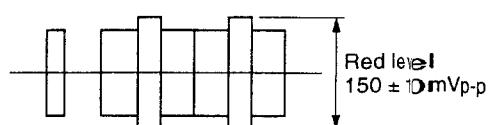
Mode	Playback
Signal	Alignment tape, 1 kHz (color bar) portion
Measurement Point	AUDIO LINE OUT terminal
Measurement Equipment	Audio level meter
Specified Value	-7.5 ± 2 dBs

Confirmation Method :

- 1) Playback 1kHz portion and make sure that AUDIO LINE OUT signal level is -7.5 ± 2 dBs.

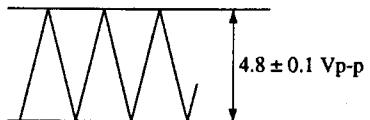
2-4. REC CHROMA ADJUSTMENT

- 1) Input the PAL COLOUR BAR signal (2Vp-p).
- 2) Connect Oscilloscope to JL022.
- 3) Adjust for 150 ± 10 mVp-p (Red level) using RV652 (EE mode).



2-5. SECAM DET ADJUSTMENT AND CHECK

- 1) Input the SECAM COLOR BAR Signal.
- 2) Connect Oscilloscope To pin⑪ of IC051.
- 3) Adjust for 4.8 ± 0.1 Vp-p using RV051
(REC/PB Mode).



SECTION 3

INTERFACE, IC PIN FUNCTION DESCRIPTION

3-1. SYSTEM CONTROL-VIDEO BLOCK INTERFACE (MA BOARD IC501)

Signal	Pin No.	I/O	STOP	FF	REW	TAPE THREADING	TAPE UNTHREADING	PB	PB. PAUSE	SLOW	X2	PICTURE SEARCH		REC	REC. PAUSE
												CUE	REVIEW		
V-PB	IC501 ⑤	O	H	H	H	H	H	L	L	L	L	L	L	H	H
RF SW P (SW25)	IC501 ①	O	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1
Q VD/V MUTE	IC501 ②	O	L	L	L	L	L	*2	*3	*3	*3	*3	*3	L	L
NA-SP	IC501 ⑩	O	*4	*4	*4	*4	*4	*5	*5	*5	*5	*5	*5	*4	*4
LP	IC501 ⑫	O	*8	*8	*8	*8	*8	*5	*5	*5	*5	*5	*5	*8	*8
REC-P	IC501 ⑤	O	L	L	L	L	L	L	L	L	L	L	L	L	H
REC	IC501 ⑩	O	L	L	L	L	L	L	L	L	L	L	L	H	H
V SYNC	IC501 ⑯	I	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6
OSD MUTE	IC501 ⑦	O	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7
CTL REC	IC501 ⑨	O	L	L	L	L	L	L	L	L	L	L	L	H	L
NTSC	IC501 ⑪	O	L	L	L	L	L	L	L	L	L	L	L	L	L
JOG	IC501 ⑬	O	L	L	L	L	L	L	H	H	H	H	H	L	L
CRC SETTEI	IC501 ⑭	O	L	L	L	L	L	L	L	L	L	L	L	*9	*9

*1. 25Hz 50% duty pulse synchronizing with drum rotation.

*2. Normally "L". "H" when the video signal is not detected.

*3. V period "H" pulse.

*4. "L" in the SP mode. Selected according to the recording mode.

*5. Selected according to the tape recording mode.

*6. Composite sync signal (positive).

*7. "H" when menu screen or gray back screen.

*8. Selected by REC mode, "L" in the SP mode.

*9. "H" while APC is set.

Mode Signal	SP	LP	EP
SP ⑪	L	H	H
LP ⑫	L	L	H

3-2. SYSTEM CONTROL-SERVO PERIPHERAL CIRCUIT INTERFACE (MA BOARD IC501)

Signal	Pin No.	I/O	STOP	FF	REW	TAPE THREADING	TAPE UNTHREADING	PB	PB · PAUSE	SLOW	X2	PICTURE SEARCH		REC	REC · PAUSE	PB INDEX WRT/ERS
												CUE	REVIEW			
REC CTL	IC501 ⑦	O	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	
CAP STOP	IC501 ⑧	O (O.D.)	L	HI-Z (O.D.)	HI-Z (O.D.)	HI-Z (O.D.)	HI-Z (O.D.)	HI-Z (O.D.)	L	*3	HI-Z (O.D.)	HI-Z (O.D.)	HI-Z (O.D.)	HI-Z (O.D.)	HI-Z (O.D.)	
STEP PLS	IC501 ⑨	O	L	L	L	L	L	L	L	*2	L	L	L	L	L	
CTL REC	IC501 ⑩	O	L	L	L	L	L	L	L	L	L	L	L	L	L	
CTL INDEX	IC501 ⑪	O	L	L	L	L	L	L	L	L	L	L	H	L	H	
PB CTL	IC501 ⑫	I	H	*6	*6			*1	H/L	*2	*6	*6	*6	*1	H	
DRUM PG	IC501 ⑬	I	*4	*7	*7	*5	*5	*7	*7	*7	*7	*7	*7	*7	*7	
DRUM FG	IC501 ⑭	I	*4	*8	*8	*5	*5	*8	*8	*8	*8	*8	*8	*8	*8	
CAP FG	IC501 ⑮	I	H/L	*6	*6	*5	*5	*6	H/L	*9	*6	*6	*6	*6	H/L	
CAP DA	IC501 ⑯	O	*10	*10	*10	*10	*10	*11	*10	*10	*11	*11	*11	*11	*10	
DRUM DA	IC501 ⑰	O	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	
CTL STEP	IC501 ⑲	O	L	L	L	L	L	L	L	*13	L	L	L	L	L	

*1. 25Hz pulse.

*2. Pulse in tape running.

*3. Reverse logic pulse of STEP PLS.

*4. "L" when drum rotation stops.

*5. Unstable period pulse.

*6. Pulse of period proportionate to tape speed.

*7. 25Hz pulse.

*8. 300Hz pulse.

*9. Pulse in tape running.

*10. Approx. 2 msec. period "H" or "L" pulse.

*11. Approx. 1.5 msec. period "H" or "L" pulse.

*12. Approx. 3 msec. period "H" or "L" pulse.

*13. "H" in FWD direction and STEP drive.

3-3. SYSTEM CONTROL-MECHANISM BLOCK INTERFACE (MA BOARD IC501)

Signal	Pin No.	I/O	EJECTED	CASSETTE	CASSETTE	TAPE	TAPE	STOP	FF	REW	PB	PB·PAUSE	SLOW	X2	PICTURE SEARCH		REC	REC·PAUSE
				LOADING	UNLOADING	THREADING	UNTHREADING		L	L	L	L	L	L	CUE	REVIEW		
CAM LOAD	IC501 ⑬	O	L	H	L	H	L	L	L	L	L	L	L	L	L	L	L	L
CAM UNLOAD	IC501 ⑭	O	L	L	H	L	H	L	L	L	L	L	L	L	L	L	L	L
CAM 12V	IC501 ⑮	O		H	L	H	L											
MODE 1	IC501 ⑯	I	H	L	L	*1	*1	H	H	H	H	H	H	H	L	H	H	H
MODE 2	IC501 ⑰	I	L	L	L	*1	*1	L	L	L	H	H	H	H	H	H	H	H
MODE 3	IC501 ⑱	I	L	L	L	*1	*1	H	H	H	L	H	H	L	L	H	L	H
MODE 4	IC501 ⑲	I	L	H	H	*1	*1	H	L	L	L	L	L	L	L	L	L	L
REC PRF	IC501 ⑳	I	L	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2
T REEL FG	IC501 ㉑	I	H/L	H/L	H/L	H/L	H/L	H/L	*3	*3	*3	H/L	*3	*3	*3	*3	H/L	
S REEL FG	IC501 ㉒	I	H/L	H/L	H/L	*3	*3	H/L	*3	*3	H/L	*3	*3	*3	*3	*3	H/L	
END LED	IC501 ㉓	O (O.D.)	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4
CAP TRQ 1	IC501 ㉔	O (O.D.)																
CAP TRQ 2	IC501 ㉕	O (O.D.)											L	*1				L
CAP TRQ 3	IC501 ㉖	O (O.D.)							H	H				*1		H	H	
CAP STOP	IC501 ㉗	O (O.D.)	L	L	L	H	H	L	H	H	H	L	*5	H	H	H	H	L
CAP RVS	IC501 ㉘	O	H			L	H	H/L	L	H	L	L	L/*5	L	L	H	L	L
CAP DA	IC501 ㉙	O																
T SENS	IC501 ㉚	I	*4	*4	*4	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7
S SENS	IC501 ㉛	I	*4	*4	*4	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7

*1. Uncertainty

*2. "L" when the erasing protection tab is bent, "H" when not bent.

*3. Pulse of period proportionate to reel rotationg speed.

*4. Approx. 2 msec. period "H" pulse.

*5. Pulse in tape running.

*6. "L" only in tape running and when CAP RVS is "H".

*7. Nomally "L". 2 msec. poriod "H" pulse when tape top or tape end is detected.

3-4. SYSTEM CONTROL-SYSTEM CONTROL PERIPHERAL CIRCUIT INTERFACE (MA BOARD IC501)

Signal	Pin No.	I/O	I/O Level											
ASURA RESET	IC501 ⑩	I	Normally "H". "L" when service interruption is detected or restored.											
ASURA CS	IC501 ⑪	I	Chip select signal from the timer microprocessor. V period "L" pulse.											
SI BUS	IC501 ⑫	I	Serial communication data from the timer microprocessor. V period "L" pulse.											
SO BUS	IC501 ⑬	O	Serial communication data to the timer microprocessor. V period "L" pulse.											
S CLK	IC501 ⑭	I	Serial communication clock with the timer microprocessor. V period "L" pulse.											

3-5. SYSTEM CONTROL-AUDIO BLOCK INTERFACE (MA BOARD IC501)

Signal	Pin No.	I/O	STOP	FF	REW	TAPE THREADING	TAPE UNTHREADING	PB	PB·PAUSE	SLOW	X2	PICTURE SEARCH		REC	REC·PAUSE
												CUE	REVIEW		
AF ENVELOP	IC501 ⑮	I	AF RF envelope signal input pin for auto tracking.												
NA PB	IC501 ⑯	O	L	L	L	L	L	H	H	H	H	H	H	L	L
A MUTE	IC501 ⑰	O (O.D.)	L	L	L	L	L	*1	H	H	H	H	H	L	L
NA SP	IC501 ⑲	O	*2	*2	*2	*2	*2	*3	*3	*3	*3	*3	*2	*2	*2
NA REC.P	IC501 ⑳	O	L	L	L	L	L	L	L	L	L	L	L	H	L
*4 AF REC.P	IC501 ㉑	O	L	L	L	L	L	L	L	L	L	L	L	H	L
*4 AF SWP	IC501 ㉒	O	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1
AF SW POSITION	IC501 ㉓	I	Input pin for AF switching position adjustment.												
*4 FULL ERS	IC501 ㉔	O (O.D.)	H	H	H	H	H	H	H	H	H	H	H	L	H

*1. 25Hz 50% duty pulse approximately 5 msec. delayed from RF SW P.

*2. Selected according to SP/LP selector. "L" in the SP mode, "H" in the LP mode.

*3. Selected according to the tape recording mode. "L" in the SP mode, "H" in the LP mode.

*4. Not used.

3-6. SYSTEM CONTROL-RF MODULATOR, INPUT SELECTION BLOCK INTERFACE (MA BOARD IC501)

Signal	Pin No.	I/O	I/O Level		
			TUNER	LINE 1	LINE 2
LINE 1	IC501 ㉕	O	L	H	L
*1 LINE 2	IC501 ㉖	O	L	L	H

*1. Not used.

3-7. SERVO/SYSTEM CONTROL MICROPROCESSOR (MA BOARD IC501) PORT FUNCTION DESCRIPTION

Pin No.	Signal	I/O	Function
1	RF SWP	O	RF switching pulse.
2	QVD	O	False VD.
3	QHD ENBL	O	False HD voltage level control.
4	AF REC P	O	Hi-Fi recording control. (Not used. (open))
5	REC P	O	Recording signal.
6	FE ON	O	Flying erase. (Not used. (open))
7	REC CTL	I/O	REC CTL.
8	CAP TRQ3	O	Capstan current control.
9	RENTAL	I/O	H : poor tape.
10	EDIT	O	EDIT control. (Not used. (open))
11	NA REC P	I/O	Normal audio recording mode. H : recording mode.
12	LP	O	H in LP mode.
13	CAMLOAD	I/O	
14	CAMUNLOAD	I/O	Loading motor rotaing direction control.
15	C IN/REC PRF	O	Cassette IN and erasing protection tad detection switch input.
16	HEAD CONT	I/O	Head change control.
17	T SENS	I	Tape top sensor input.
18	S SENS	I	Tape end sensor input.
19	MOD CONT	O	Modulator power supply ON/OFF control. (Not used. (open))
20	AV CONT	O	ON/OFF control. (Not used. (open))
21	ME SECAM	I/O	H : ME SECAM (Not used. (open))
22	SECAM	I/O	H : SECAM (Not used. (open))
23	VPB	O	Reverse VPB, H : P-OFF. (Not used. (open))
24	STEP PLS	O	Step pulse, H : Capstan step driving.
25	PAL 60	O	H : HTSC on PAL TV.
26	3.58 NTSC	O	Tuner 'audio selection signal. H : 3.58 XTAL.
27	NTSC	O	H : PAL.
28	E TAPE	O	H : HG tape. (Not used. (open))
29	BIL	O	H output : BS bilingual mode. (Not used. (open))
30	C+CONT	O	CANAL + control. (Not used. (open))
31	CAM 12V	O	CAM motor voltage change.
32	END LED	O	Top/end detection lamp lighting control.
33	CAP TRQ 2	O	Capstan current control signal 2. L : FF/REW to STOP.
34	CAP TRQ 1	O	Capstan current control signal 1. L : SLOW speed down.

Pin No.	Signal	I/O	Function
35	PAL	O	H : PAL (Not used. (open))
36	FULL ERS	O	Full erase control. (Not used. (open))
37	A MUTE	O	Audio mute. H : mute.
38	CAP STOP	O	Capstan stop reversal. L : Capstan stop.
39	MP	I	Fixed to L.
40	ASURA RESET	I	System reset input.
41	VSS		GND.
42	XTAL		
43	EXTAL		System clock 16MHz.
44	ASURA CS	I	Chip select signal.
45	SI BUS	I	
46	SO BUS	O	Serial communication signal.
47	S CLK	I	
48	DEST 2	I	Destination judge input. Fixed to L.
49	AD	I	AD input for APC 2.
50	NTPB-SW	I	358/443/onpal input.
51	AFSW POS	I	Hi-Fi switching position adjustment.
52	A VSS		GND.
53	A VREF		AD port reference input. (UNSW 5V)
54	A VDD		UNSW 5V.
55	MODE 4	I	Cam encoder data 4.
56	MODE 3	I	Cam encoder data 3.
57	MODE 2	I	Cam encoder data 2.
58	MODE 1	I	Cam encoder data 1.
59	DEW	I	Condensation sensor input. "H" when condensation.
60	RF ENV	I	Video playback signal envelope.
61	AF ENV	I	Hi-Fi audio playback signal envelope.
62	RF SW POS	I	Video head switching position adjustment.
63	S REEL FG	I	S side reel FG input.
64	T REEL FG	I	T side reel FG input.
65	NT JUDGE	I	4.43/3.58 judge input.
66	V SYNC	I	Composite sync input.
67	PB CTL	I	Servo CTL input.
68	DRM PG	I	Drum PG input.

Pin No.	Signal	I/O	Function
69	DRM FG	I	Drum FG input.
70	CAP FG	I	Capstan FG input.
71	OSD MUTE	O	Video output mute signal. H : Gray back. (Not used. (open))
72	CAP RVS	O	Capstan reverse control. H : Reverse.
73	CAP DA	O	Capstan D/A output.
74	DRM DA	O	Drum D/A output.
75	EP	O	L : EP (Not used. (open))
76	ORC SETTEI	O	H : ORC measure.
77	VD CTL	I	CTL counter input. (Fixed to "H".)
78	DEST 1	I	Destination judge input.
79	LINE 1	O	Input selection control signal.
80	SO 1	I/O	Expanded port data.
81	CLK 1	I/O	Expanded port clock.
82	LINE 2	O	Input selection control signal. (Not used. (open))
83	NAPB	O	Audio output control signal. H : Normal audio playback.
84	PWM	O	PWM output for APC2. (Not used. (open))
85	E TAPE	O	L : Good tape.
86	N.C.	I	Not used. (open)
87	TX		Not used. (open)
88	VSS		GND.
89	VDD		UNSW 5V.
90	VDD		UNSW 5V.
91	NA SP	O	For normal audio. L : SP mode.
92	ENV GAIN	O	Video envelope gain change.
93	CTL STEP	O	CTL amp, STEP operation control.
94	CTL REC	O	H : CTL write.
95	V PB	O	Video system playback mode reversal. L : Playback.
96	CTL INDEX	O	Index control signal rewrite. H : Erase.
97	JOG	O	H : JOG
98	REC	O	Head amplifier recording power supply.
99	SP	O	L : SP mode.
100	AF SWP	O	AF switching pulse. (Not used. (open))

*1. Selected by tape condition.

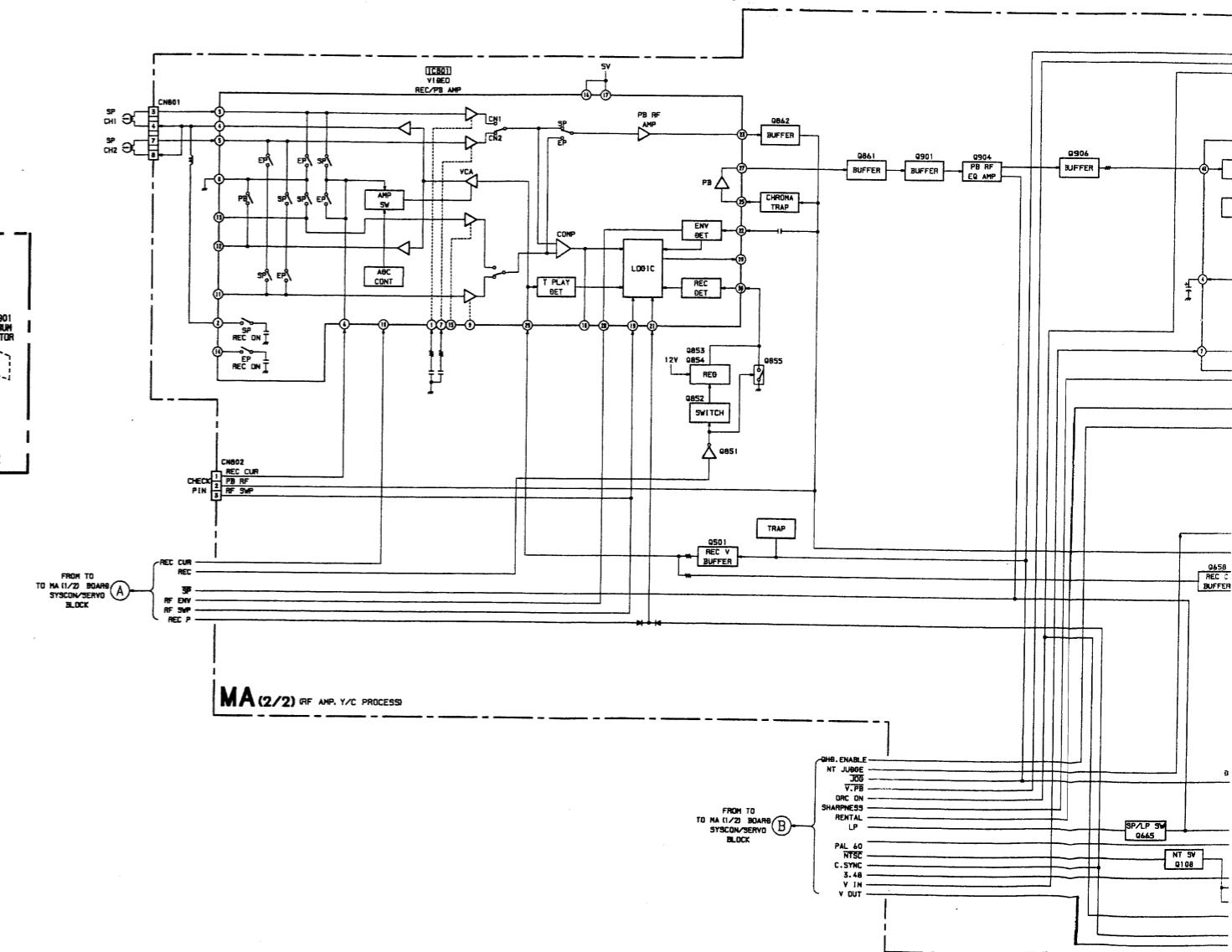
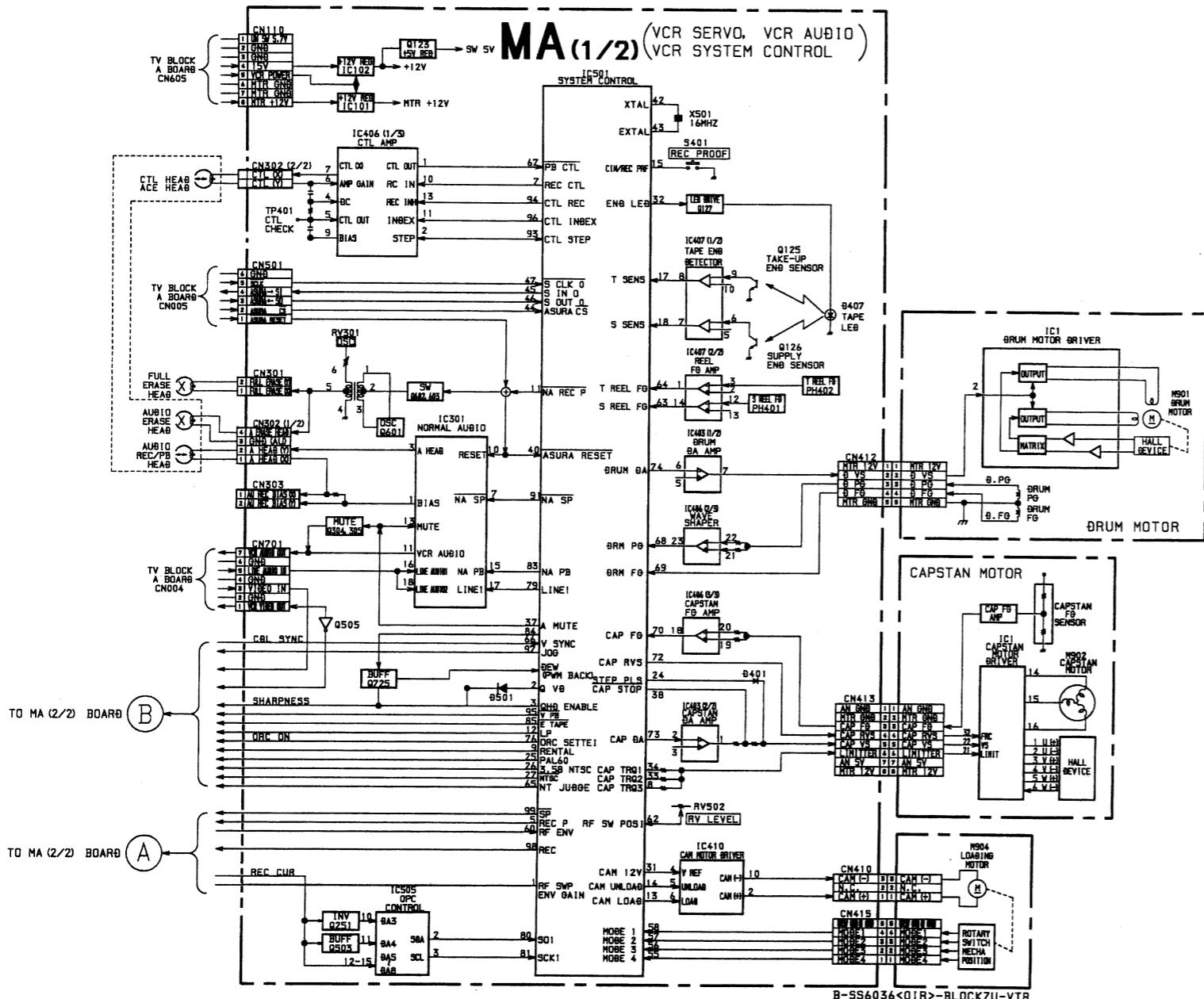
tape signal	good	normal	poor
RENTAL ⑨	L	L	H
E TAPE ⑩	L	H	H

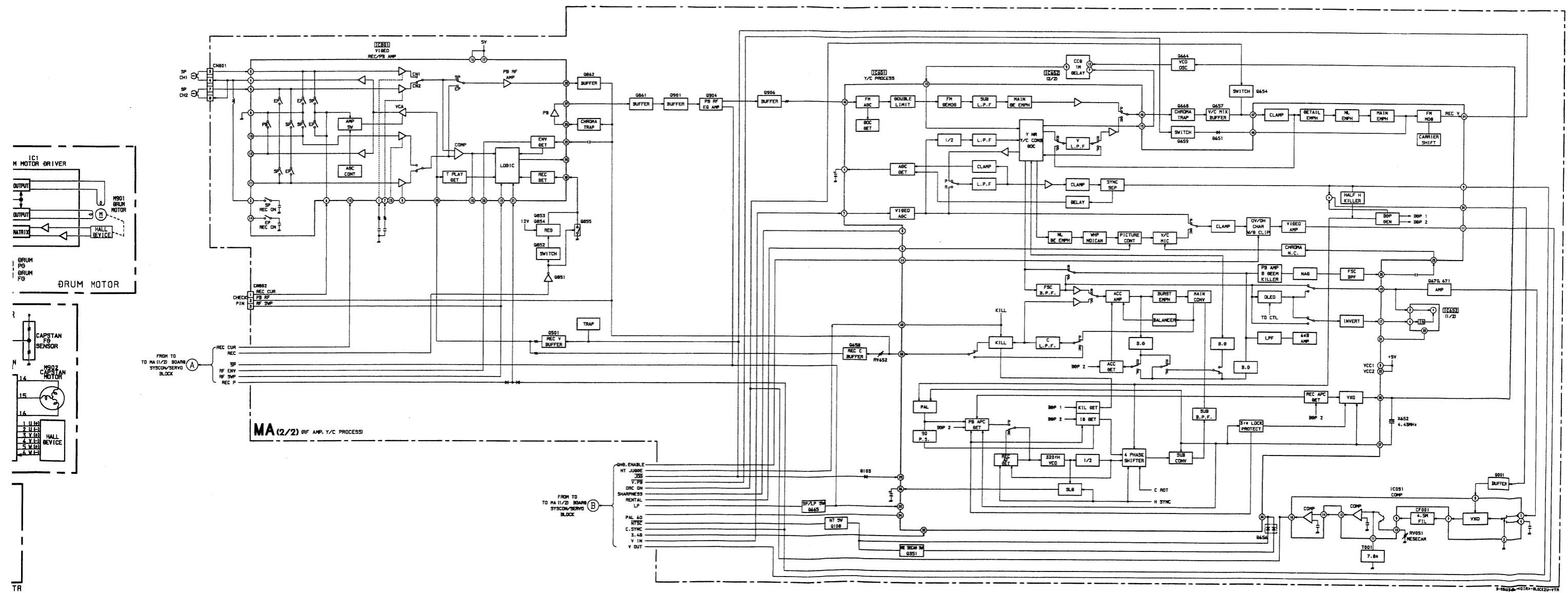
*1

SECTION 4

DIAGRAMS

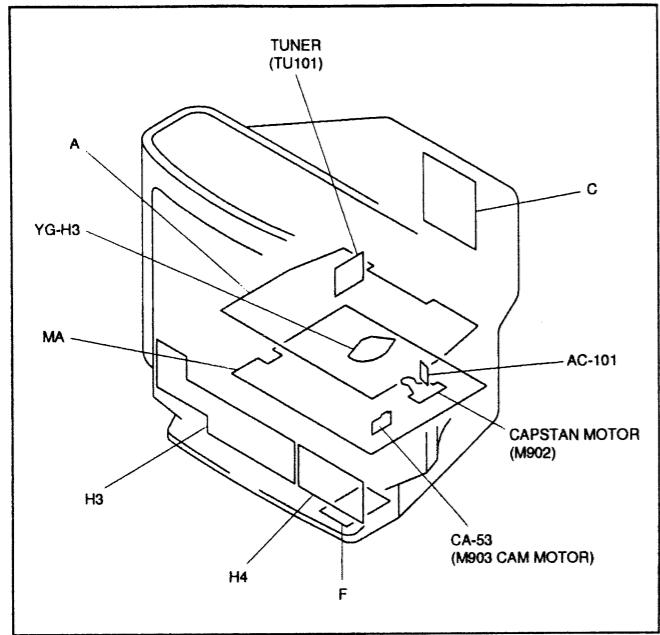
4-1. BLOCK DIAGRAM





MA [HEAD AMP, SERVO/SYSTEM CONTROL,
NORMAL AUDIO, Y/C PROCESS]

4-2. CIRCUIT BOARDS LOCATION



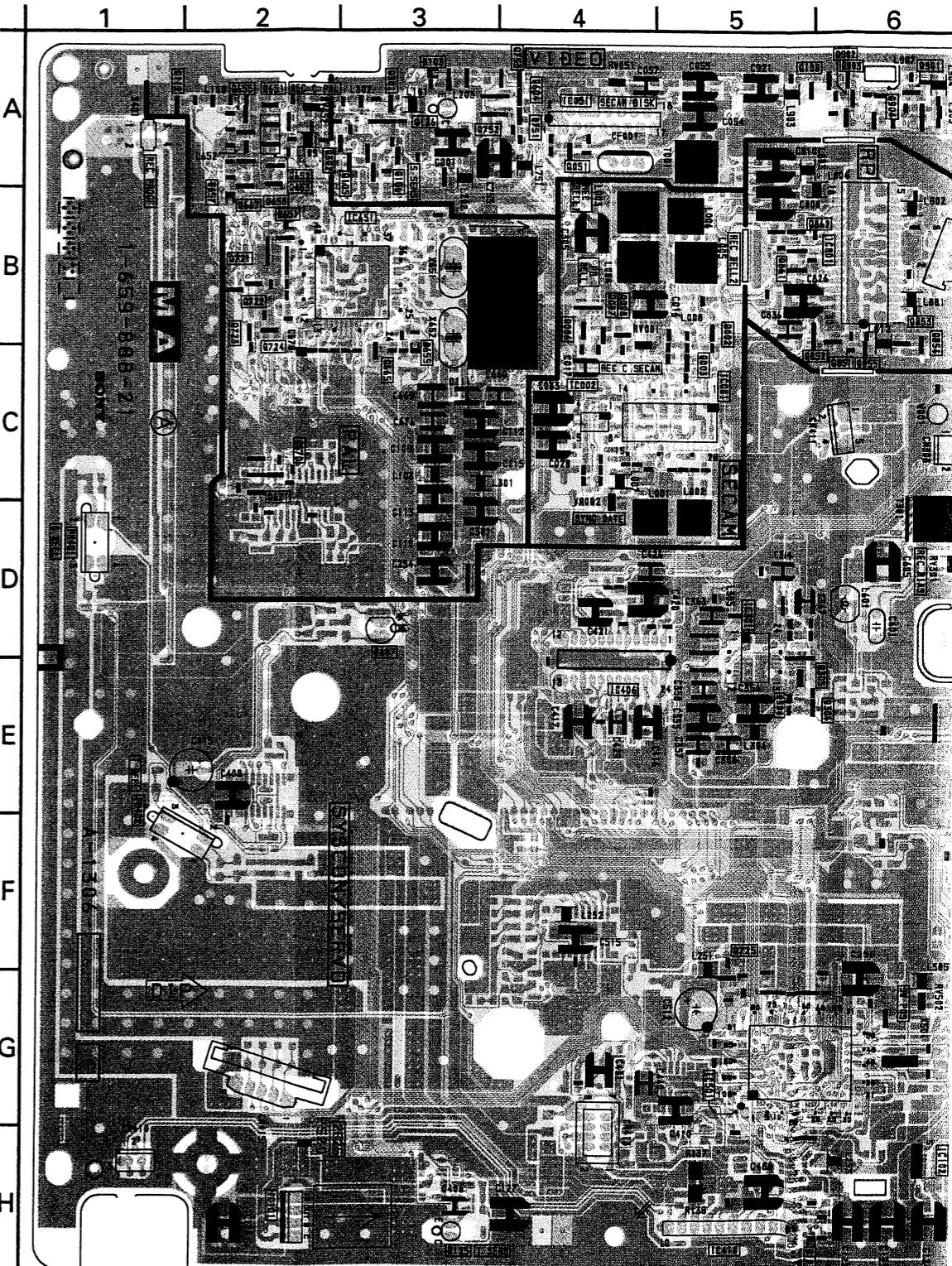
Reference information

RESISTOR	: RN	METAL FILM
	: RC	SOLID
	: FPRD	NONFRAMMABLE CARBON
	: FUSE	NONFLAMMABLE FUSIBLE
	: RW	NONFLAMMABLE WIREWOUND
	: RS	NONFLAMMABLE METAL OXIDE
	: RB	NONFLAMMABLE CEMENT
	: *	ADJUSTMENT RESISTOR
COIL	: LF-8L	MICRO INDUCTOR
CAPACITOR	: TA	TANTALUM
	: PS	STYROL
	: PP	POLYPROPYLENE
	: PT	MYLAR
	: MPS	METALIZED POLYESTER
	: MPP	METALIZED POLYPROPYLENE
	: ALB	BIPOLEAR
	: ALT	HIGH TEMPERATURE
	: ALR	HIGH RIPPLE

MA BOARD

IC	
IC051	A-4
IC101	H-2
IC102	H-6
IC301	D-5
IC403	G-9
IC406	E-4
IC407	E-12
IC410	H-5
IC501	G-5
IC505	F-10
IC651	B-3
IC652	C-12
IC801	B-6
Q671	C-2
Q721	B-2
Q722	B-2
Q723	B-2
Q724	B-2
Q725	F-5
Q851	B-6
Q852	B-5
Q853	B-6
Q854	C-6
Q855	C-6
Q861	B-5
Q862	B-5
Q901	A-6
Q904	A-6
Q905	A-9
Q906	A-8
Q907	A-9
TRANSISTOR	
Q051	A-4
Q052	A-9
Q108	A-5
Q110	A-11
Q112	A-1
Q123	H-8
Q125	H-3
Q126	A-3
Q127	D-11
Q201	A-10
Q251	G-10
Q304	E-6
Q305	E-5
Q351	A-9
Q503	F-10
Q505	F-10
Q601	D-8
Q602	E-8
Q603	E-8
Q653	A-2
Q654	B-11
Q655	A-2
Q656	A-12
Q657	B-11
Q658	A-2
Q659	A-12
Q664	B-11
Q665	C-3
Q667	B-2
Q668	B-11
Q670	C-2
DIODE	
D103	A-3
D122	H-8
D123	H-6
D304	E-5
D401	G-9
D402	G-10
D405	D-13
D406	E-12
D407	D-3
D408	H-9
D410	H-8
D501	H-8
D502	G-9
D503	H-8
D651	B-2
D653	B-11
D655	C-3
D656	B-11
D657	B-2
D802	B-9
D804	B-9
ADJUSTING ELEMENT	
RV051	A-4
RV301	D-6
RV502	G-6
RV652	A-2

- MA BOARD - <Component Side>



4-3. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

Note:

- All capacitors are in μF unless otherwise noted. pF : $\mu\mu\text{F}$ 50WV or less are not indicated except for electrolytics and tantalums.
- All electrolytics are in 50V unless otherwise specified.
- All resistors are in ohms.

$k\Omega = 1000\Omega$, $M\Omega = 1000k\Omega$

- Indication of resistance, which does not have one for rating electrical power, is as follows.

Pitch: 5 mm
Rating electrical power: 1/4W

- 1/4W in resistance, 1/10W and 1/8W in chip resistance.
- : nonflammable resistor.
- : fusible resistor.
- : internal component.
- : panel designation and adjustment for repair.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- Readings are taken with a color-bar signal input.
- Readings are taken with a $10M\Omega$ digital multimeter.
- Voltages are dc with respect to ground unless otherwise noted.
- Voltage variations may be noted due to normal production tolerances.
- All voltages are in V.

* : Measurement impossibility.

- : B + line.
- : B - line.
(Actual measured value may be different).
- : signal path. (RF)
- Circle numbers are waveform reference.
- Measurement mode.
no mark : REC/PB mode
() : REC mode

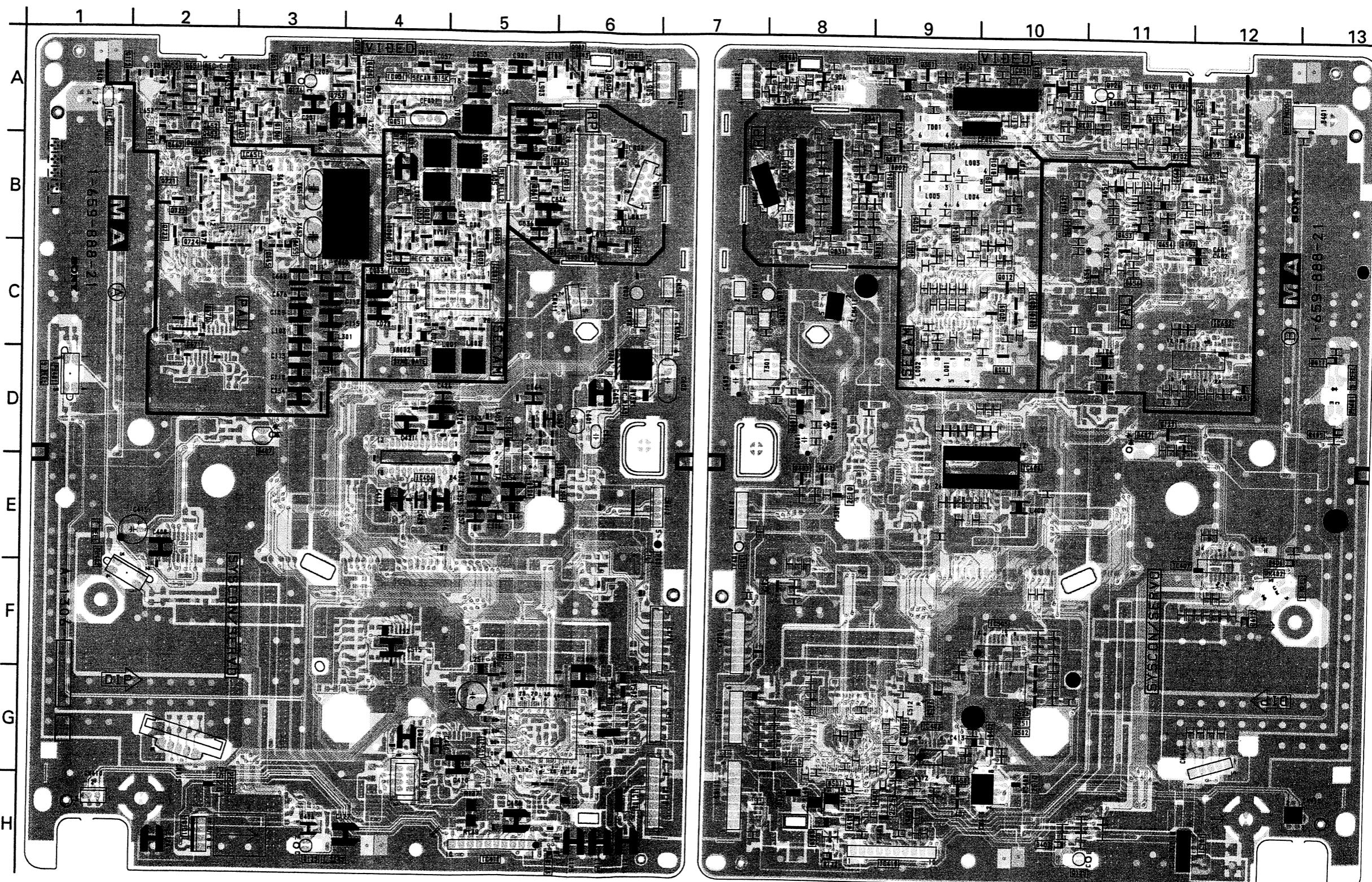
MA [HEAD AMP, SERVO/SYSTEM CONTROL,
NORMAL AUDIO, Y/C PROCESS]

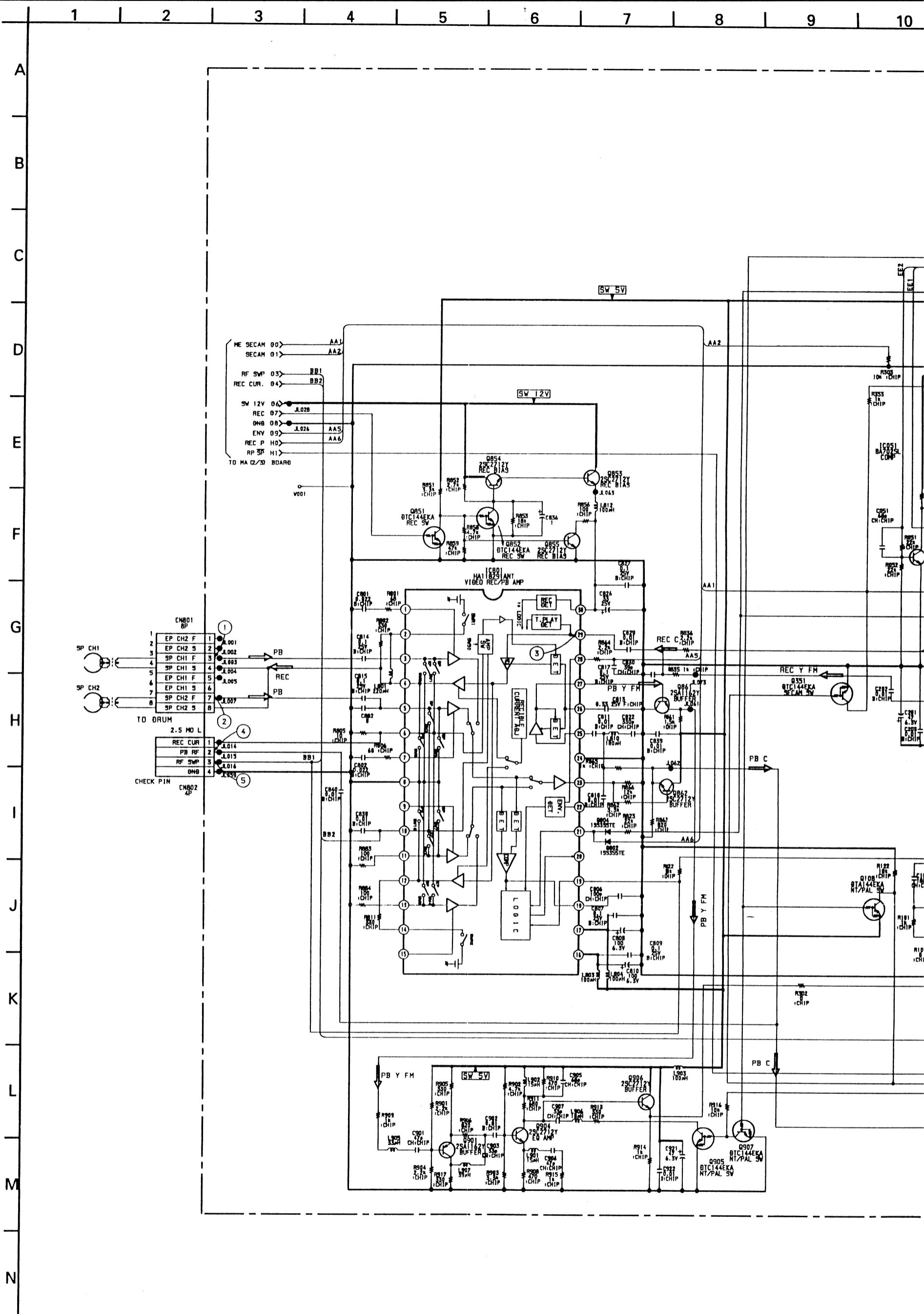
MA BOARD

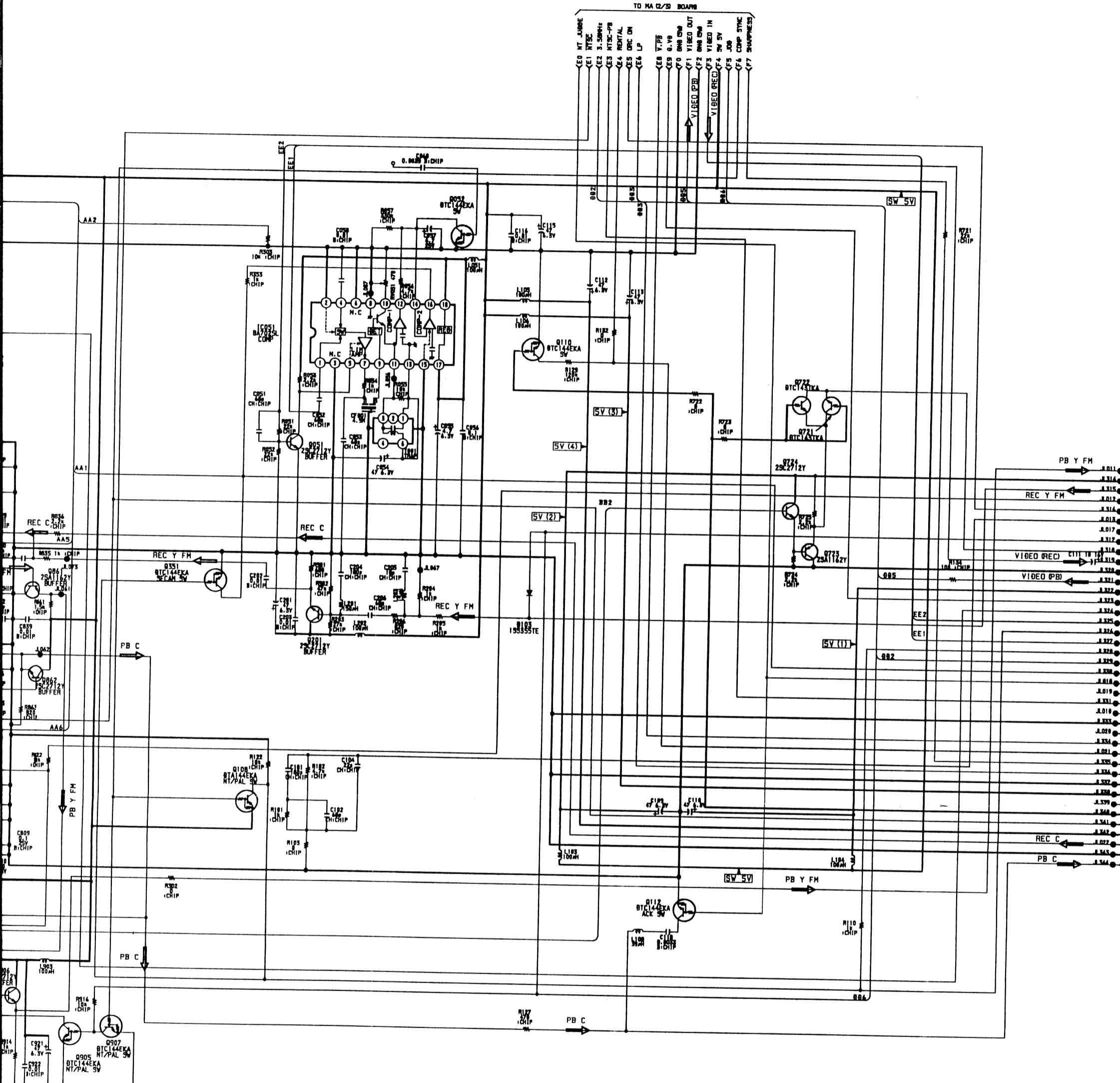
IC	
IC051	A-4
IC101	H-2
IC102	H-6
IC301	D-5
IC403	G-9
IC406	E-4
IC407	E-12
IC410	H-5
IC501	G-5
IC505	F-10
IC651	B-3
IC652	C-12
IC801	B-6
TRANSISTOR	
Q051	A-4
Q052	A-9
Q108	A-5
Q110	A-11
Q112	A-1
Q123	H-8
Q125	H-3
Q126	A-3
Q127	D-11
Q201	A-10
Q251	G-10
Q304	E-6
Q305	E-5
Q351	A-9
Q503	F-10
Q505	F-10
Q601	D-8
Q602	E-8
Q603	E-8
Q653	A-2
Q654	B-11
Q655	A-2
Q656	A-12
Q657	B-11
Q658	A-2
Q659	A-12
Q664	B-11
Q665	C-3
Q667	B-2
Q668	B-11
Q670	C-2
DIODE	
D103	A-3
D122	H-8
D123	H-6
D304	E-5
D401	G-9
D402	G-10
D405	D-13
D406	E-12
D407	D-3
D408	H-9
D410	H-8
D501	H-8
D502	G-9
D503	H-8
D651	B-2
D653	B-11
D655	C-3
D656	B-11
D657	B-2
D802	B-9
D804	B-9
ADJUSTING ELEMENT	
RV051	A-4
RV301	D-6
RV502	G-6
RV652	A-2

- MA BOARD - <Component Side>

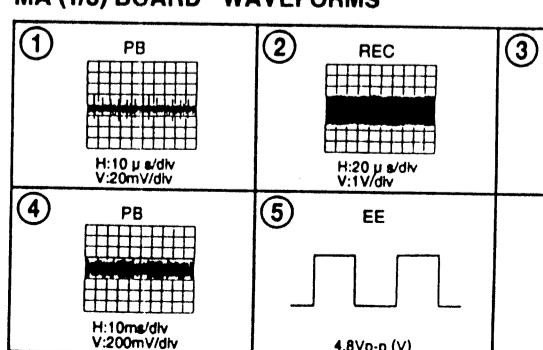
<Conductor Side>



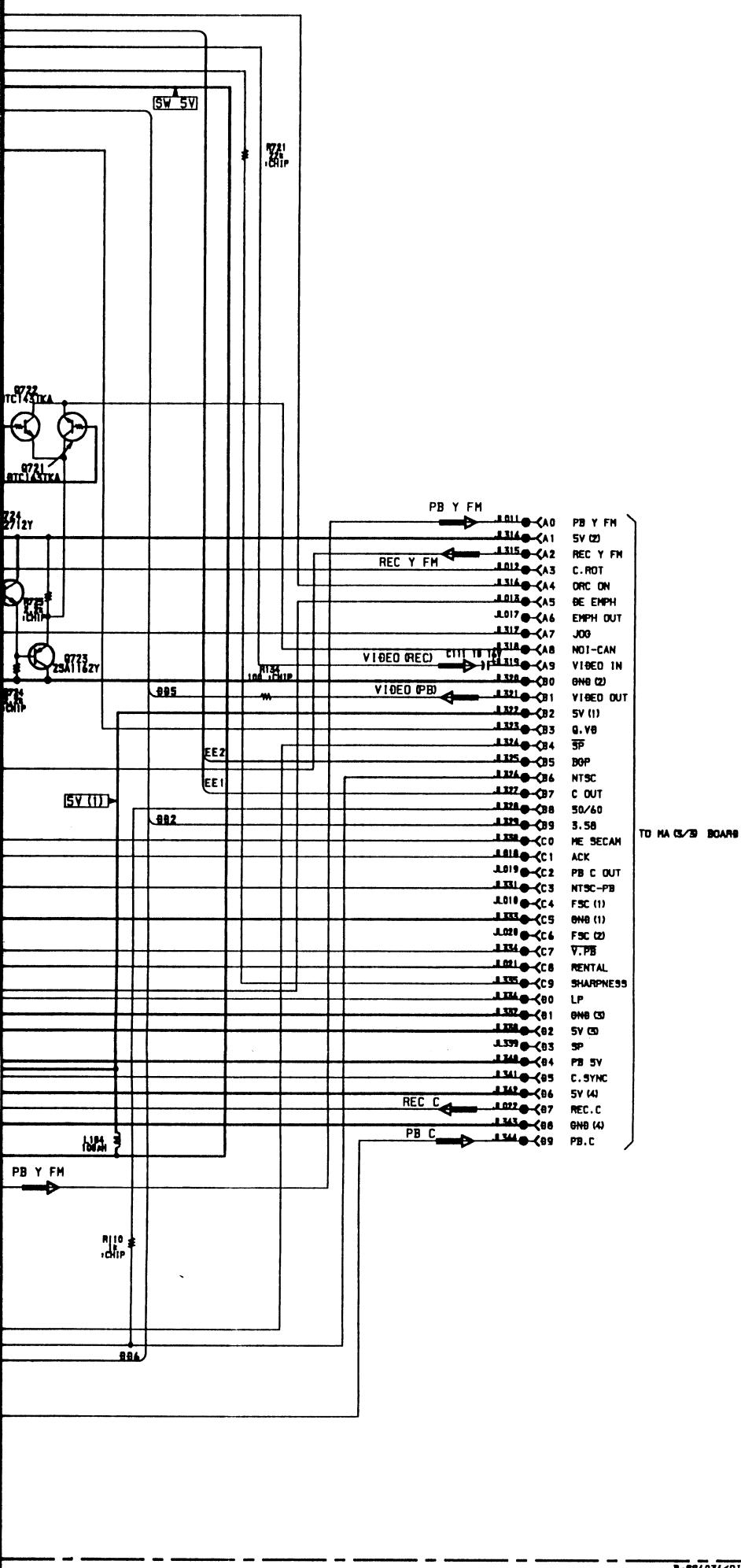




MA (1/3) BOARD WAVEFORMS



MA (1/3)
(HEAD AMP)



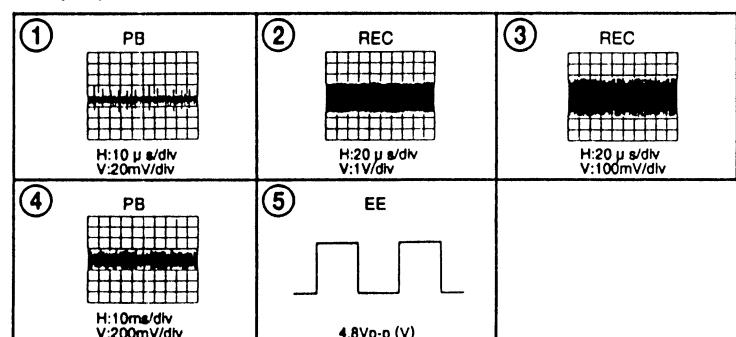
MA (1/3) BOARD

REF.	Pin No.	VOLTAGE
IC801	①	4.6 (2.3)
	②	5.3 (0)
	③	0.1 (0.8)
	④	0
	⑤	0.1 (0.8)
	⑥	0.1
	⑦	4.6 (2.3)
	⑩	5.3
	⑪	0
	⑫	0
	⑬	0
	⑭	0
	⑮	0
	⑯	2.5
	㉑	2.5
	㉒	0.3
	㉓	4.0
	㉔	1.4 (3.1)
	㉕	4.0 (3.8)
	㉖	1.6
	㉗	4.6 (1.9)
	㉘	0.5 (2.1)
	㉙	3.8 (0)
	㉚	9.5 (0)

MA (1/3) BOARD

REF.		VOLTAGE
Q105	C	2.7
	B	5.0
Q106	C	2.7
	B	0
Q108	C	0
	B	5.0
Q201	E	2.3
	B	3.1
Q851	C	0.1 (3.3)
	B	5.0 (0)
Q852	E	0 (0.8)
	C	10.9 (0.2)
	B	0.1 (3.3)
Q853	E	9.6 (0)
	B	10.3 (0.2)
Q854	E	10.3 (0.2)
	B	10.9 (0.2)
Q855	C	9.5 (0)
	B	0 (0.8)
Q861	E	5.3 (2.5)
	B	4.6 (1.9)
Q862	E	0.8 (2.4)
	B	1.4 (3.1)
Q901	E	3.4
	C	2.0
	B	2.7
Q904	E	1.5
	C	3.4
	B	2.2
Q905	C	1.7
	B	0
Q906	E	2.8
	B	3.5
Q907	C	0
	B	5.0

MA (1/3) BOARD WAVEFORMS



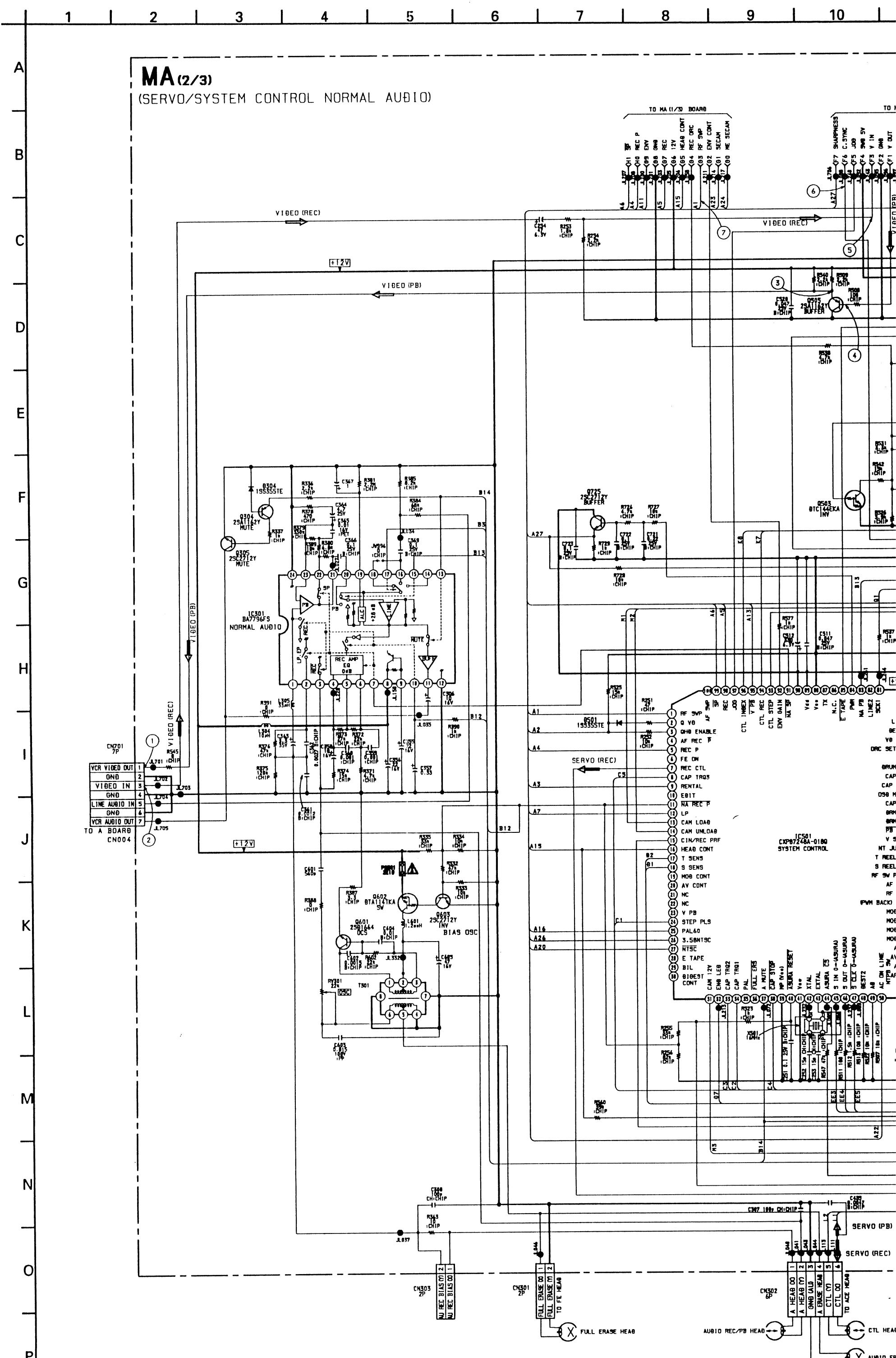
(1/3)
AMP)

MA (1/3) BOARD

REF.	PIN No.	VOLTAGE
IC801	①	4.6 (2.3)
	②	5.3 (0)
	③	0.1 (0.8)
	④	0
	⑤	0.1 (0.8)
	⑥	0.1
	⑦	4.6 (2.3)
	⑩	5.3
	⑪	0
	⑫	0
	⑬	0
	⑭	0
	⑮	0
	⑯	2.5
	⑰	2.5
	⑱	0.3
	⑲	4.0
	⑳	1.4 (3.1)
	㉑	4.0 (3.8)
	㉒	1.6
	㉓	4.6 (1.9)
	㉔	0.5 (2.1)
	㉕	3.8 (0)
	㉖	9.5 (0)

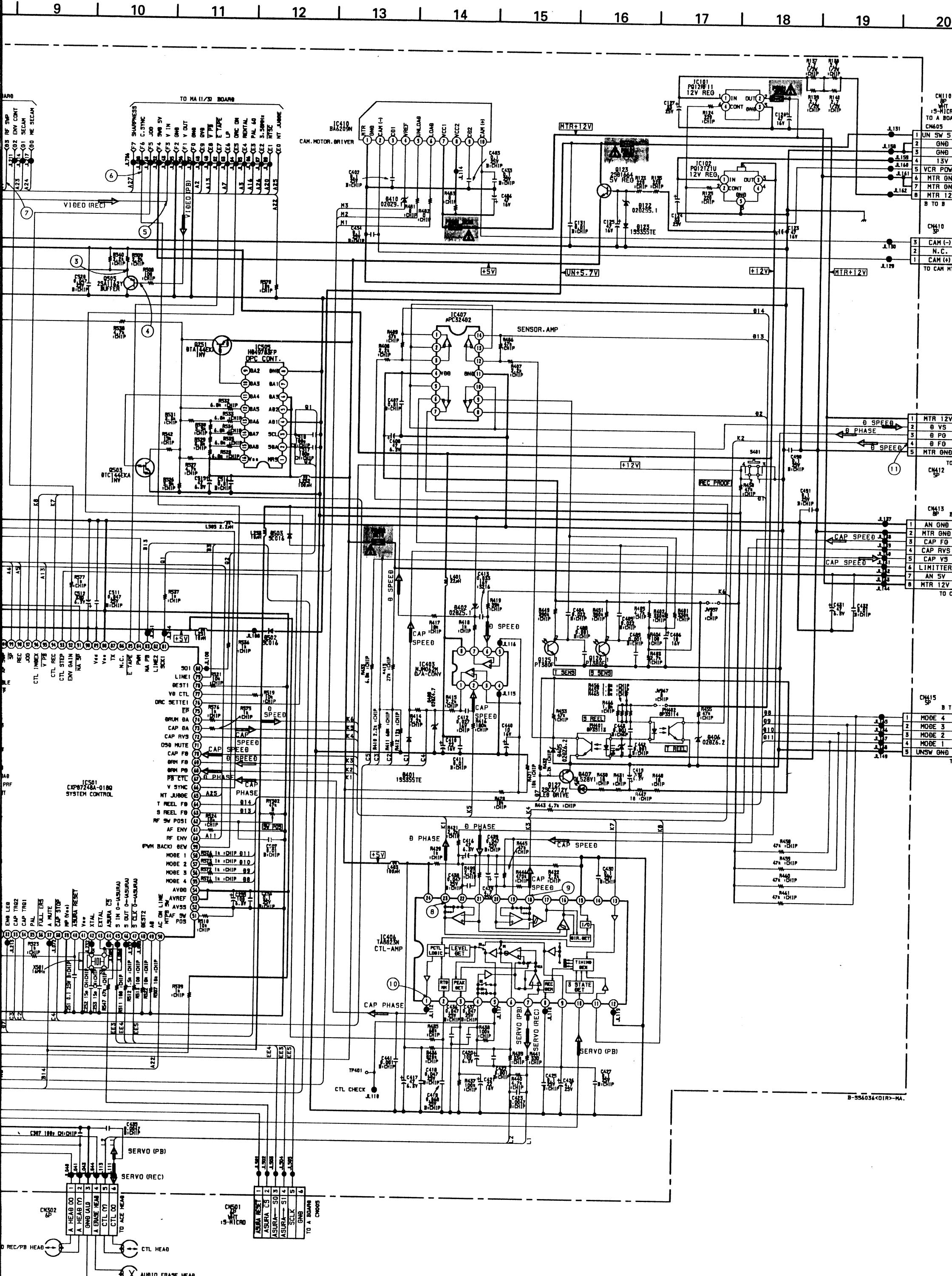
MA (1/3) BOARD

REF.	VOLTAGE
Q105	C 2.7
	B 5.0
Q106	C 2.7
	B 0
Q108	C 0
	B 5.0
Q201	E 2.3
	B 3.1
Q851	C 0.1 (3.3)
	B 5.0 (0)
Q852	E 0 (0.8)
	C 10.9 (0.2)
Q853	B 0.1 (3.3)
	E 9.6 (0)
Q854	B 10.3 (0.2)
	E 10.3 (0.2)
Q855	B 10.9 (0.2)
	C 9.5 (0)
Q861	B 0 (0.8)
	E 5.3 (2.5)
Q862	B 4.6 (1.9)
	E 0.8 (2.4)
Q901	B 1.4 (3.1)
	E 3.4
Q904	C 2.0
	B 2.7
Q905	E 1.5
	C 3.4
Q906	B 2.2
	E 2.8
Q907	C 1.7
	B 0
Q908	E 3.5
	B 5.0

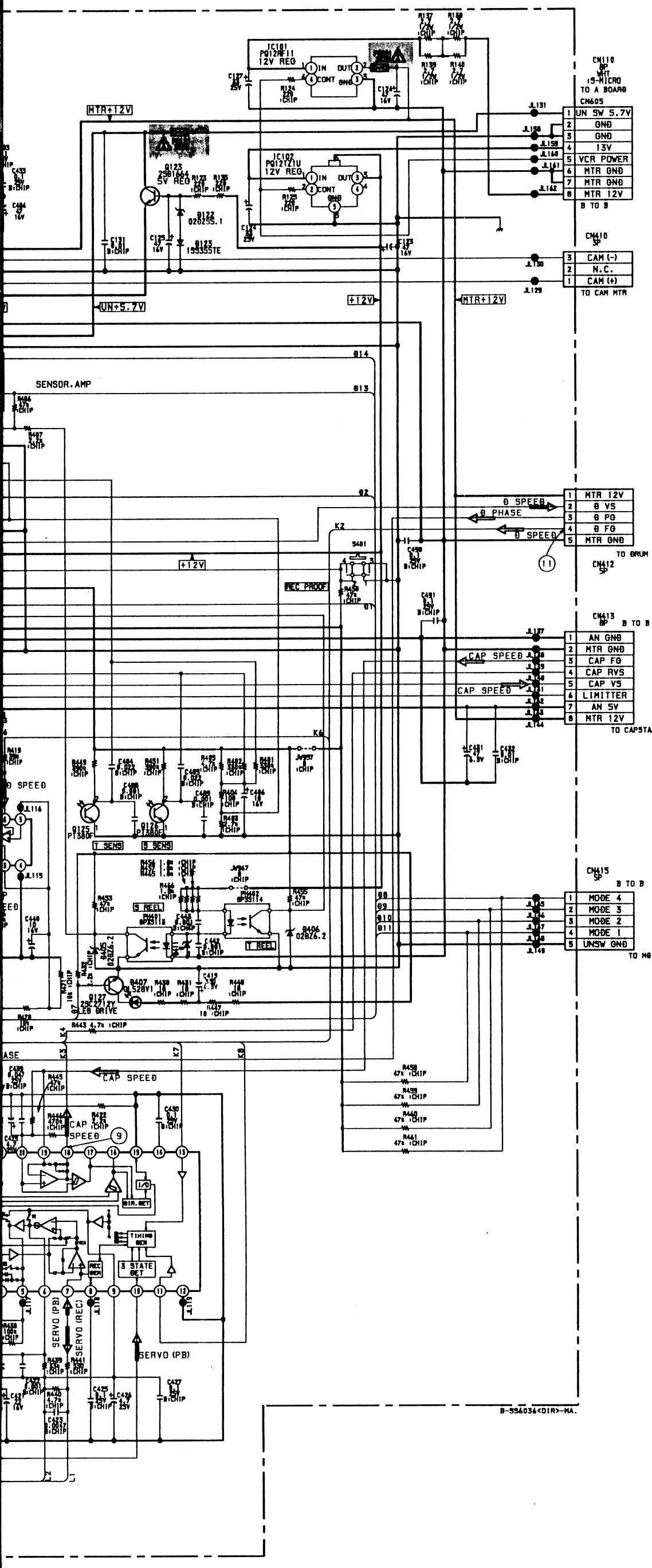


Schematic diagram

Schematic diagram



15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26



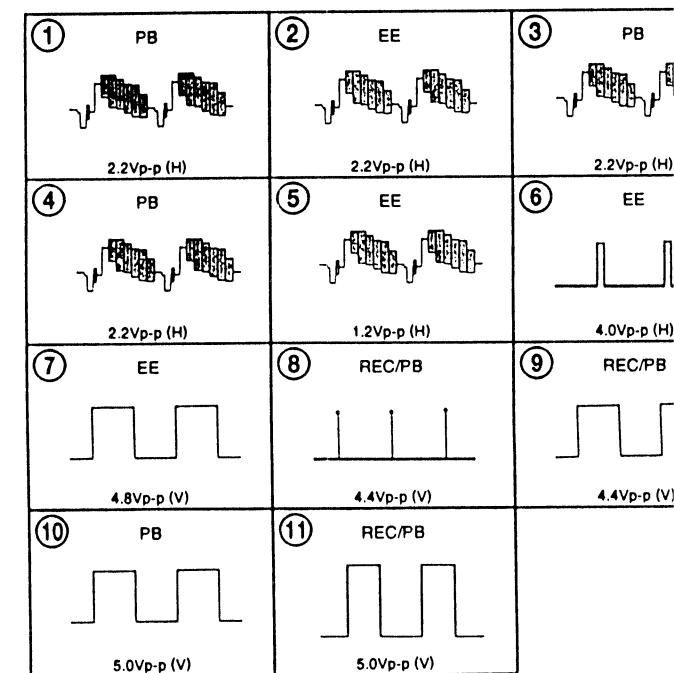
MA (2/3) BOARD

REF.	Pin No.	VOLTAGE	REF.	Pin No.	VOLTAGE
IC406	①	2.1	IC406	⑥	2.6
	②	0		⑩	3.0
	③	0		⑪	(2.7)
	④	6.0		⑫	0
	⑤	6.0		⑬	5.0
	⑥	6.0		⑭	(0)
	⑦	0		⑮	2.3
	⑧	12.5		⑯	2.7
	⑨	0		⑰	2.7
	⑪	0		⑱	2.8
	⑯	0		⑲	3.4
	⑰	0		⑳	0.3
	⑱	5.9		㉑	0
	㉑	0		㉒	1.8
IC407	㉒	5.9		㉓	0
	㉓	0.7		㉔	5.0
	㉔	5.9		㉕	1.8
	㉕	2.2		㉖	0
	㉖	2.2		㉗	0
	㉗	2.1		㉘	0
	㉘	2.8		㉙	2.0
	㉙	2.7		㉚	1.9
	㉚	2.7		㉛	1.8
	㉛	2.7		㉜	1.8
IC403	㉜	2.7		㉝	0
	㉝	3.3		㉞	4.8
	㉞	0.1		㉟	5.0
	㉟	1.3		㉟	0
	㉟	2.6		㉟	(5.4)
	㉟	2.6		㉟	0
	㉟	2.6		㉟	0
	㉟	2.9		㉟	0
	㉟	(2.6)		㉟	0
	㉟	3.1		㉟	(0.6)
IC505	㉟	(0.6)		㉟	0
	㉟	0		㉟	0
	㉟	0		㉟	0
	㉟	0		㉟	0
	㉟	0		㉟	0
	㉟	0		㉟	0
	㉟	0		㉟	0
	㉟	0		㉟	0
	㉟	0		㉟	0
	㉟	0		㉟	0

MA (2/3) BO

REF.	V
Q127	C
Q251	B
Q304	C
Q305	C
Q503	B
Q505	E
Q601	C
Q602	B
Q603	C

MA (2/3) BOARD WAVEFORMS



CN110
NP
WT
TO A BOARD
CN405

1	UN SW 5.7V
2	GND
3	GND
4	13V
5	VCR POWER
6	MTR GND
7	MTR GND
8	MTR 12V

B TO B

CN410

SP

3	CAM (-)
2	N.C.
1	CAM (+)

TO CAM MTR

1	MTR 12V
2	B VS
3	B PG
4	B FG
5	MTR GND

TO BRUM

CN412

SP

1	AN GND
2	MTR GND
3	CAP FG
4	CAP RVS
5	CAP VS
6	LIMITTER
7	AN SV
8	MTR 12V

TO CAPSTAN

CN415
NP
B TO B

1	MODE 4
2	MODE 3
3	MODE 2
4	MODE 1
5	UNSW GND

TO M8

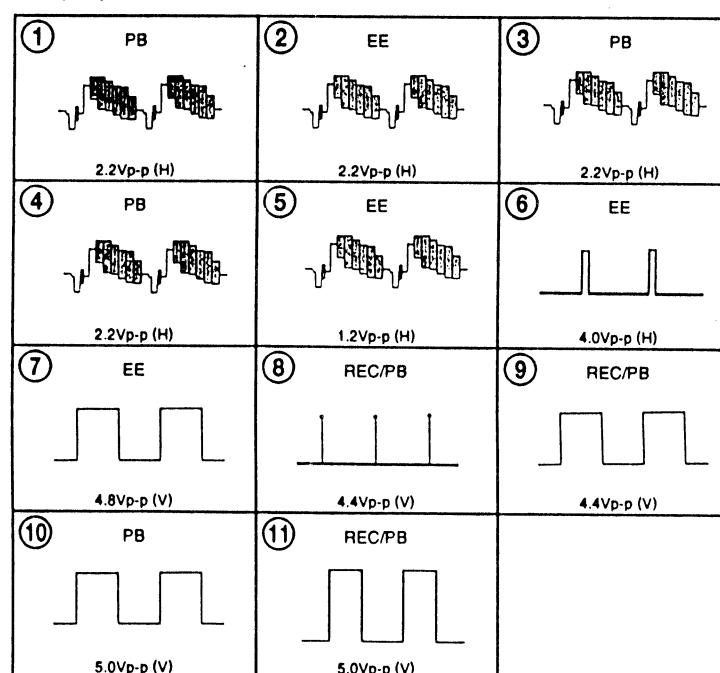
MA (2/3) BOARD

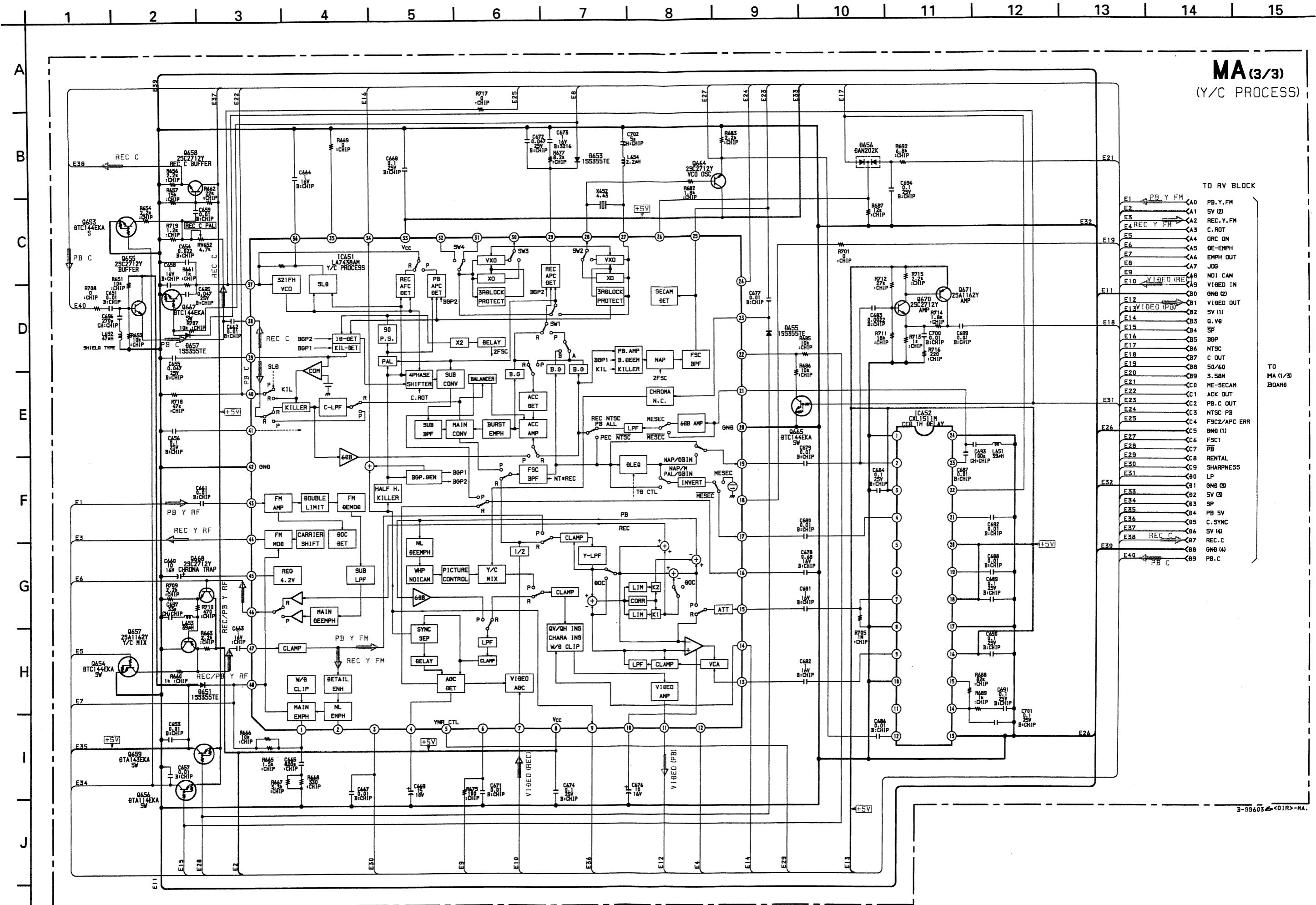
REF.	Pin No.	VOLTAGE	REF.	Pin No.	VOLTAGE
IC301	①	2.1	IC406	⑥	2.6
	②	0		⑪	3.0 (2.7)
	③	0		⑫	0
	④	6.0		⑬	5.0 (0)
	⑤	6.0		⑭	2.3
	⑥	6.0		⑮	2.7
	⑦	0		⑯	2.7
	⑧	12.5		⑰	2.8
	⑨	0		⑱	3.4
	⑩	0		⑲	0.3
	⑪	5.9		⑳	0
	⑫	0		㉑	1.8
	⑬	5.9		㉒	0
	⑭	0.7		㉓	5.0
	⑮	5.9		㉔	1.8
⑯	2.2	㉕	0		
⑰	2.2	㉖	0		
⑱	2.1	㉗	0		
IC403	①	2.8	㉘	2.0	
	②	2.7	㉙	1.9	
	③	2.7	㉚	1.8	
	④	2.7	㉛	1.8	
	⑤	2.7	㉜	0	
	⑥	2.7	㉝	0	
	⑦	2.7	㉞	0	
IC406	①	3.3	㉟	4.8	
	②	0.1	㉟	5.0	
	③	1.3	㉟	0 (5.4)	
	④	2.6	㉟	0	
	⑤	2.6	㉟	0	
	⑥	2.6	㉟	0	
	⑦	2.9 (2.6)	㉟	0	
	⑧	3.1 (0.6)	㉟	0	
	⑨	4.8Vp-p (V)	㉟	4.0Vp-p (H)	
	⑩	4.8Vp-p (V)	㉟	4.4Vp-p (V)	
	⑪	5.0Vp-p (V)	㉟	4.4Vp-p (V)	

MA (2/3) BOARD

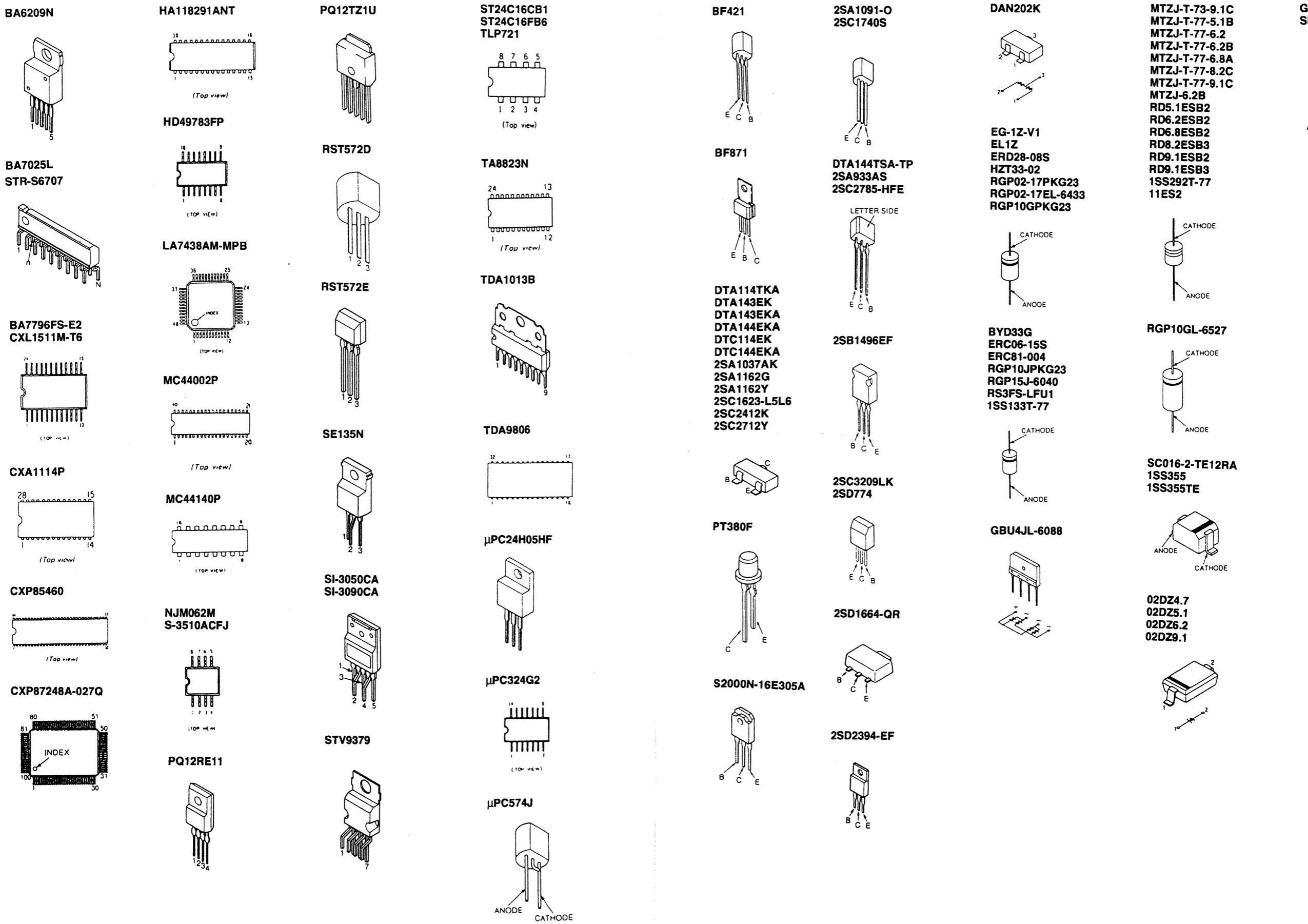
REF.	VOLTAGE
Q127	C 2.1
	B 0.6
Q251	C 5.3
	B 0
Q304	E 0
	C -1.1
Q305	C 3.7
	B -0.9
Q503	C 5.3 (0)
	B 0 (5.4)
Q505	E 2.9
	B 2.2
Q601	E 0.3 (0)
	C 11.6 (0.4)
Q602	C 12.2 (0.5)
	B 0.2 (0)
Q603	C 0.2 (0)
	B 0.7 (0)

MA (2/3) BOARD WAVEFORMS





4-4. SEMICONDUCTORS



SECTION 5

EXPLODED VIEWS

NOTE:

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.

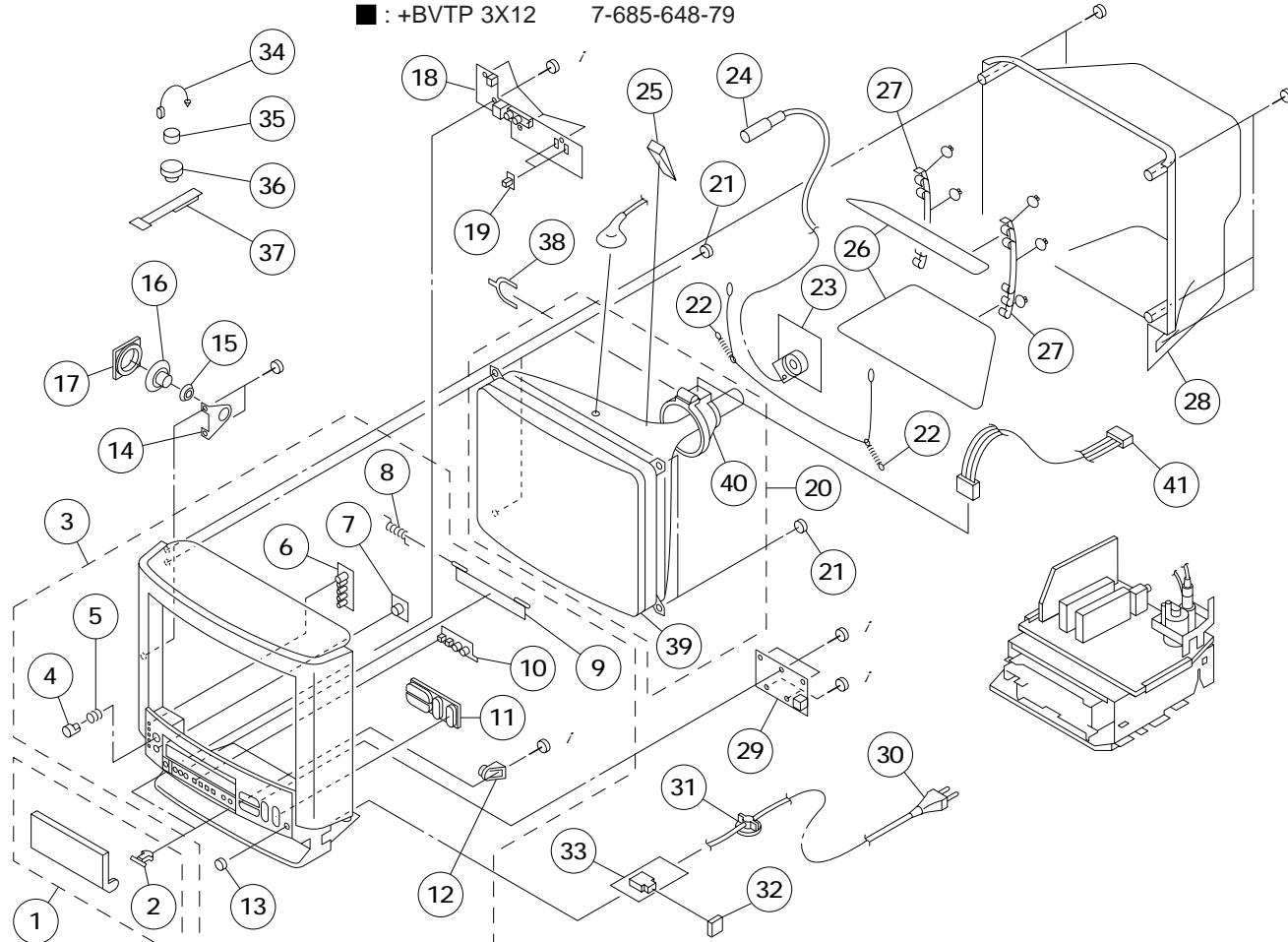
5-1. PICTURE TUBE

- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The components identified by shading and mark Δ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une trame et une marque Δ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

- : +BVTP 4X16 7-685-663-71
 ■ : +BVTP 3X12 7-685-648-79



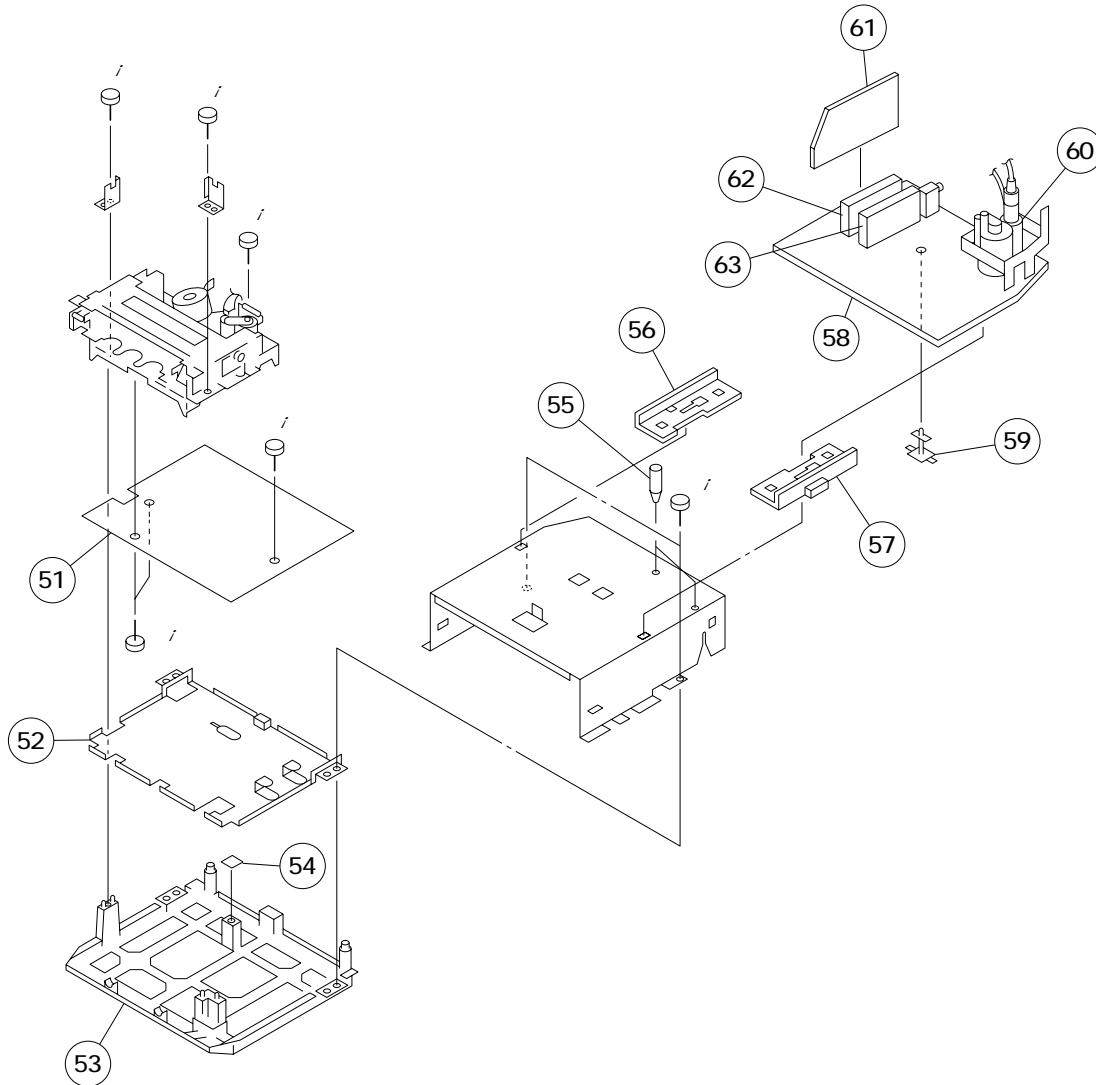
REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK	
1	X-4033-810-1	DOOR ASSY (21V4A/D/E)		2	20	Δ 8-738-787-71	ITC ASSY	21,25,38-41
	X-4033-811-1	DOOR ASSY (21V4U)		2	21	4-036-190-01	SCREW (5), SELF TAPPING	
	X-4033-812-1	DOOR ASSY (21V4B)		2	22	4-369-318-21	SPRING, TENSION	
2	3-703-035-11	SHAFT, LID		2	23	* A-1331-560-A	C BOARD, COMPLETE	
3	X-4033-806-1	BEZNET ASSY (21V4D)		4-13	24	1-900-900-22	LEAD ASSY, FOCUS	
	X-4033-807-1	BEZNET ASSY (21V4A/E)		4-13	25	3-704-495-01	SPACER, DEFLECTION YOKE	
	X-4033-808-1	BEZNET ASSY (21V4U)			26	Δ 1-406-828-11	COIL, DEGAUSSING	
	X-4033-809-1	BEZNET ASSY (21V4B)			27	* 4-341-778-01	BAND, DEGAUSSING COIL	
4	4-050-428-01	BUTTON, POWER			28	4-050-435-01	COVER, REAR	
5	2-612-017-00	SPRING, COMPRESSION			29	* A-1372-252-A	H4 BOARD, COMPLETE	
6	4-050-430-01	GUIDE, LIGHT			30	Δ 1-765-286-11	CORD, POWER (21V4A/B/D/E)	
7	4-050-431-01	BUTTON, EJECT				△ 1-776-204-11	CORD, POWER (FILTER) (21V4U)	
8	4-050-155-01	SPRING, FL			31	Δ 4-202-531-01	AC CORD LOCK (SC)	
9	4-042-012-22	DOOR, CASSETTE			32	4-054-994-01	BUTTON, MAIN POWER	
10	4-042-006-01	BUTTON, CONTROL			33	* A-1241-250-A	F2 BOARD, COMPLETE	
11	4-050-429-01	BUTTON, MULTI			34	4-308-870-00	CLIP, LEAD WIRE	
12	4-919-393-51	DAMPER			35	1-452-032-00	MAGNET, DISK ; 10mm ϕ	
13	4-050-432-01	FILTER, REMOTE			36	1-452-094-00	MAGNET, ROTATABLE DISK ; 15mm ϕ	
14	* 4-050-632-01	BRACKET, SP			37	4-051-736-21	PIECE A (90), CONV. CORRECT	
15	* 4-050-631-01	CUSHION (B)			38	1-452-277-00	MAGNET, BMC	
16	1-504-485-21	SPEAKER (8CM)			39	Δ 8-738-784-05	PICTURE TUBE A51JXH61X	
17	* 4-050-630-01	CUSHION (A)			40	Δ 8-451-295-45	DEFLECTION YOKE Y21PFA2BA	
18	* A-1372-251-A	H3 BOARD, COMPLETE			41	1-775-044-11	CONNECTOR, DY (DOUBLE)	
19	4-042-018-21	BUTTON, SLIDE						

5-2. CHASSIS

■ : +BVTP 3X12 7-685-648-79

The components identified by shading and mark \triangle are critical for safety.
Replace only with part number specified.

Les composants identifiés par une trame et une marque \triangle sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

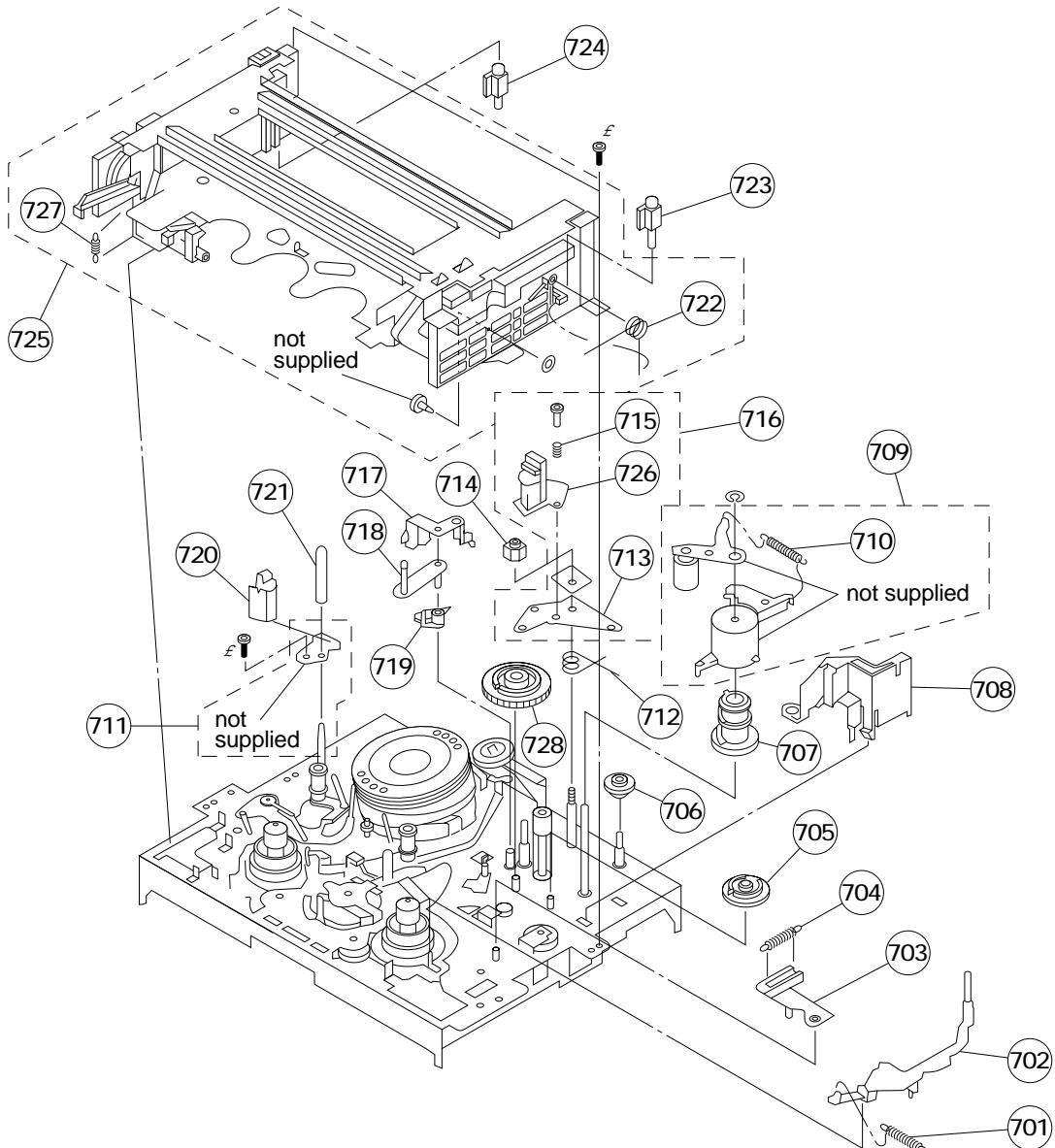


REF. NO.	PART NO.	DESCRIPTION	REMARK
51	* A-1306-533-A	MA BOARD, COMPLETE (21V4A/D/E/U)	
	* A-1306-535-A	MA BOARD, COMPLETE (21V4B)	
52	* 3-960-067-11	HOLDER, MA	
53	* 4-050-164-03	BRACKET, VTR	
54	3-965-923-01	SPACER, RUBBER	
55	* 3-691-950-01	SPACER, P.C.B	
56	* 4-050-160-01	RAIL, GUIDE (L)	
57	* 4-050-161-01	RAIL, GUIDE (R)	
58	* A-1297-858-A	A BOARD, COMPLETE (21V4A/D/E)	
	* A-1297-919-A	A BOARD, COMPLETE (21V4U)	
	* A-1297-920-A	A BOARD, COMPLETE (21V4B)	
59	* 4-376-053-01	ANCHOR, PC BOARD	

REF. NO.	PART NO.	DESCRIPTION	REMARK
60	\triangle 1-453-199-11	TRANSFORMER ASSY, FLYBACK	NX-1741//U2A
61	* A-1394-773-A	YC BOARD, COMPLETE (21V4D)	
	* A-1394-819-A	YC BOARD, COMPLETE (21V4A/E)	
	* A-1394-820-A	YC BOARD, COMPLETE (21V4U)	
	* A-1394-821-A	YC BOARD, COMPLETE (21V4B)	
62	\triangle 1-693-338-21	TUNER TU-VIF (21V4A/D/E)	
	\triangle 1-693-339-21	TUNER TU-VIF (21V4U)	
	\triangle 1-693-340-21	TUNER TU-VIF (21V4B)	
63	\triangle 1-693-338-21	TUNER TU-VIF (21V4A/D/E)	
	\triangle 1-693-339-21	TUNER TU-VIF (21V4U)	
	\triangle 1-693-340-21	TUNER TU-VIF (21V4B)	

5-3. MECHANISM DECK ASSEMBLY (1)

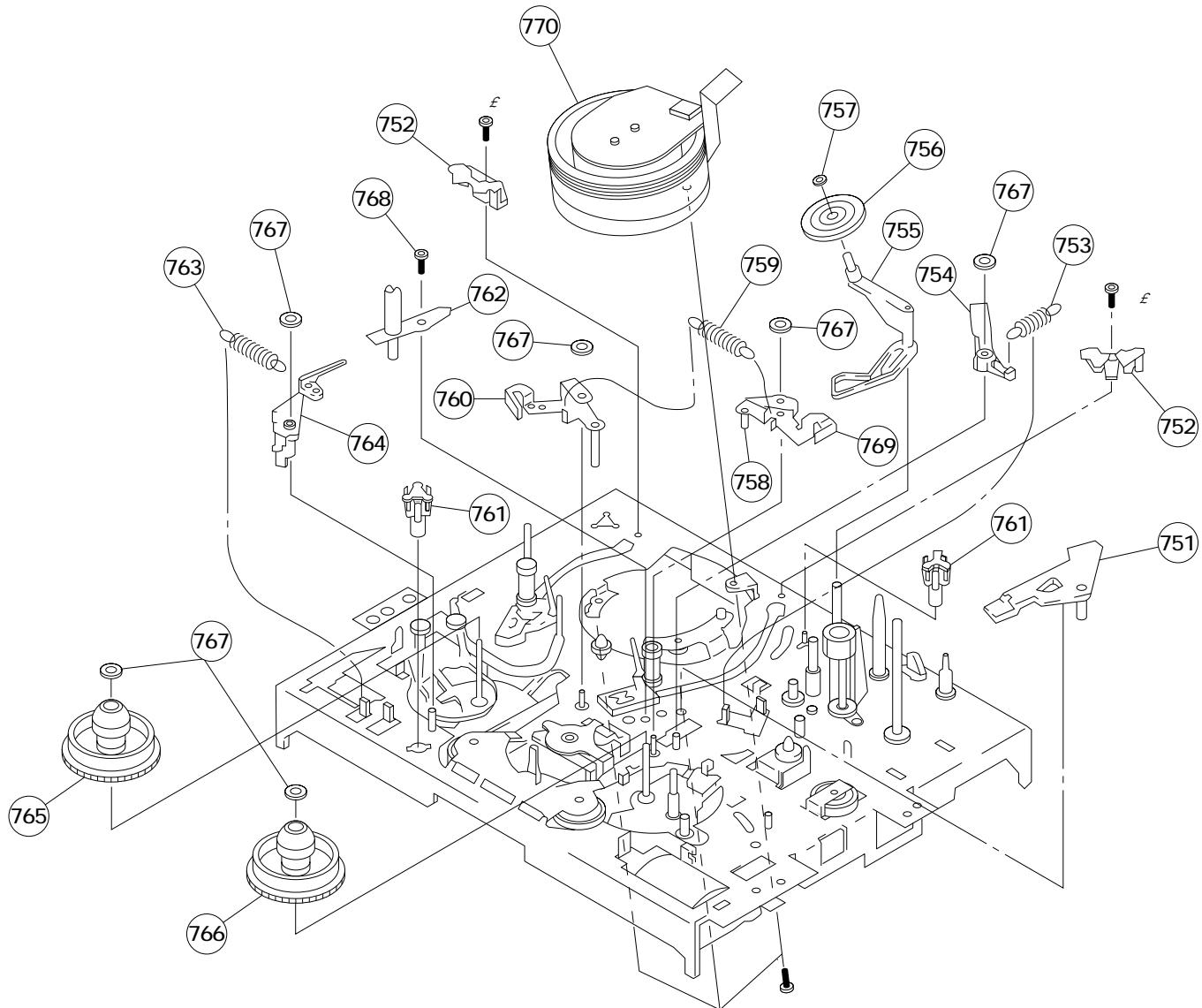
- ▲ : SCREW (3X8) 7-685-646-79
- : STOP RING 2.4, TYPE-CS 7-624-190-61
- : STOP RING 3.0, TYPE-E 7-646-106-04



REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK
701	3-958-505-01	SPRING (SOFT BRAKE T), TENSION		716	A-6736-103-H	ACE BLOCK ASSY	
702	X-3943-882-1	BRAKE (T) ASSY, SOFT		717	3-962-298-01	BRACKET, TG7 TAPE	
703	X-3943-885-1	ARM ASSY, RVS BRAKE		718	X-3944-797-1	TG8 ASSY	
704	3-958-462-01	SPRING (RVS BRAKE), TENSION		719	3-958-421-01	HOLDER, TG8	
705	3-958-153-01	GEAR, PRESS		720	1-500-144-11	HEAD, FE	
706	3-958-501-01	SCREW, ACE ADJUSTMENT		721	X-3944-460-1	ROLLER ASSY, TG2	
707	3-958-151-01	GEAR, ELEVATOR		722	3-958-195-01	SPRING, TORSION	
708	3-958-454-01	OPNER, LID		723	3-960-216-01	PLATE, LIGHT GUIDE, TOP SENSOR	
709	A-6746-072-A	PRESS BLOCK ASSY, PINCH	710	724	3-960-215-01	PLATE, LIGHT GUIDE, END SENSOR	722, 727
710	3-958-455-01	SPRING (PINCH), TENSION		725	A-6715-496-A	FL BLOCK ASSY	
711	X-3945-248-1	FEH ASSY		726	1-506-485-11	PIN, CONNECTOR 6P	
712	3-958-487-01	SPRING, (AEC) TORSION COIL		727	3-958-467-01	SPRING, TENSION COIL	
713	3-958-491-01	BASE, ACE		728	3-958-152-01	GEAR, TG8	
714	3-942-867-01	NUT, AC HEIGHT ADJUSTMENT					
715	3-960-439-02	SPRING (ACE), COMPRESSION					

5-4. MECHANISM DECK ASSEMBLY (2)

▲ : SCREW (3X8) 7-685-646-79
 ♦ : +P 3X6 7-682-547-04

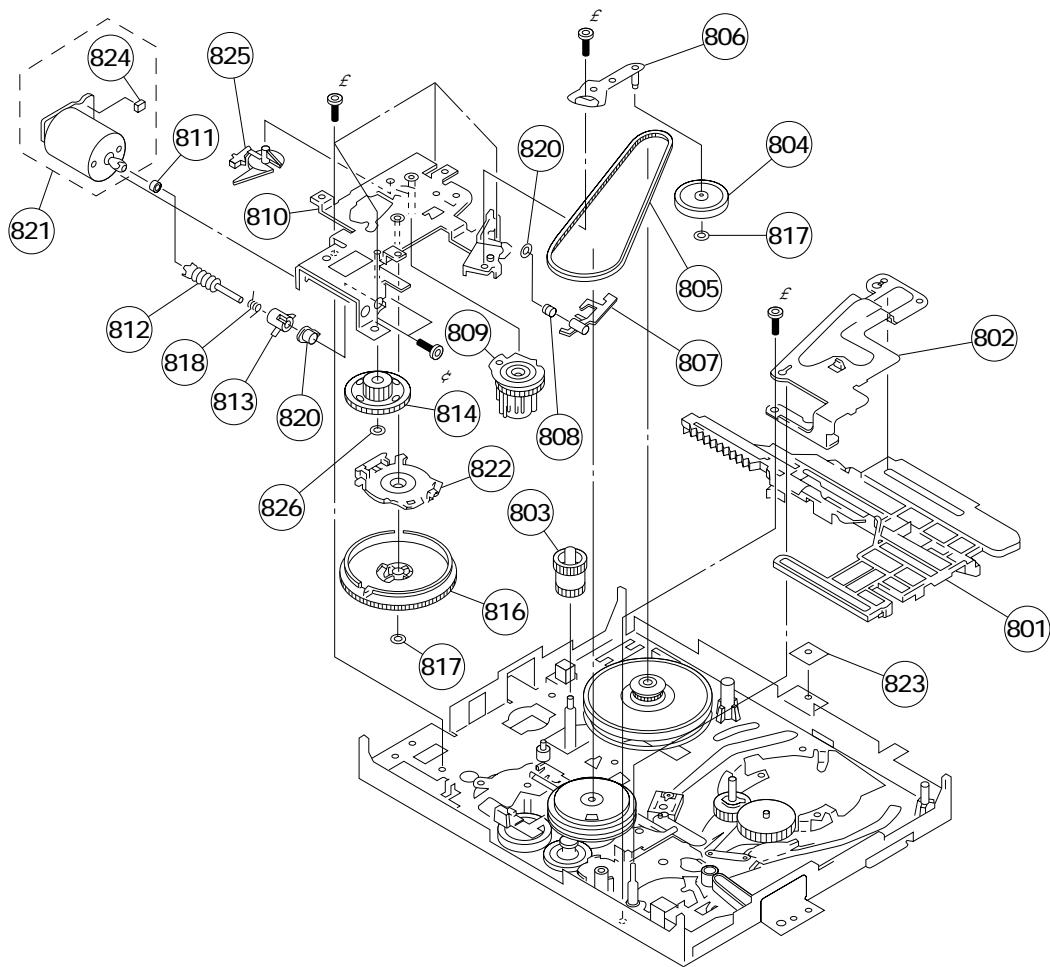


REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK
751	3-960-138-01	ARM, PENDULUM COMPULSION		761	3-958-390-01	SHAFT, PC BOARD	
752	3-958-389-01	CATCHER		762	3-958-391-01	PLATE, LIGHT GUIDE, LED	
753	3-958-535-01	SPRING, TENSION		763	3-958-443-01	SPRING, STRETCH COIL SPRING	
754	3-960-139-01	ARM, NEUTRALITY		764	3-958-450-01	BRAKE (S), SOFT	
755	X-3943-896-1	ARM ASSY, HC		765	X-3943-902-1	TABLE, REEL (S) ASSY	
756	X-3944-393-1	ROLLER ASSY, HC		766	X-3943-903-1	TABLE, REEL (T) ASSY	
757	3-321-393-01	WASHER, STOPPER		767	3-669-595-00	WASHER (2), STOPPER	
758	X-3945-654-1	LEVER (T) ASSY, MAIN BRAKE		768	3-961-441-01	SCREW (3X8)	
759	3-958-517-01	SPRING, TENSIONCOIL		769	X-3945-651-1	ARM (T) ASSY, MAIN BRAKE	
760	X-3945-650-1	BRAKE (S), ASSY, MAIN		770	1-759-034-11	DRUM ASSY (DZH-72A-R)	

5-5. MECHANISM DECK ASSEMBLY (3)

▲ : SCREW (3X8)
△ : SCREW +PS 3X4

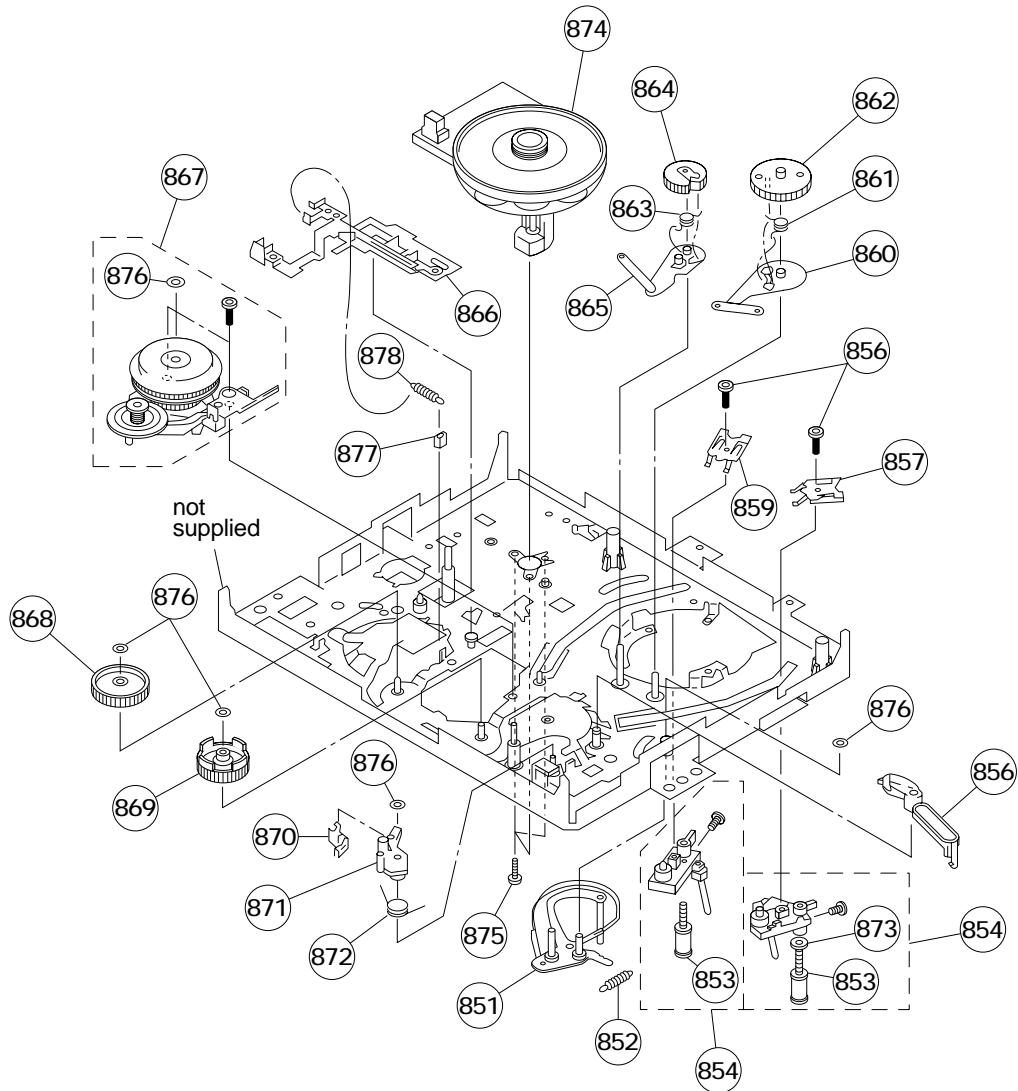
7-685-646-79
7-682-645-01



REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK
801	3-958-163-01	SLIDER, MAIN		813	3-958-160-01	PROPELLOR	
802	* 3-958-763-01	RETAINER		814	3-958-157-01	WHEEL, WORM	
803	3-958-162-01	GEAR, UPPER/LOWER COMMUNICATION		816	3-958-161-01	GEAR, CAM	
804	3-958-448-01	WHEEL, TENSION		817	3-669-595-00	WASHER (2), STOPPER	
805	3-958-361-01	BELT, TIMING		818	3-958-460-01	SPRING, ONE-WAY	
806	X-3943-889-1	ARM ASSY, TENSION VEHICLE		819	3-958-155-01	BEARING, CAM MOTOR	
807	X-3943-888-1	BRAKE ASSY, CAP		820	3-701-439-21	WASHER	
808	3-958-445-01	SPRING, TORSIONCOIL (CAP BRAKE)		821	X-3943-883-1	MOTOR ASSY, CAM	824
809	3-958-156-01	GEAR, FL DRIVING		822	1-762-076-11	SWITCH, ROTARY	
810	* X-3943-884-1	CHASSIS ASSY, CAM MOTOR		823	3-965-923-01	SPACER, RUBBER	
811	3-959-840-01	RUBBER, JOINT		824	1-766-723-11	CONNECTOR, BOARD TO BOARD 3P	
812	3-958-159-01	WORM		825	3-965-977-01	RETAINER, CAM GEAR	
				826	3-966-092-01	RING, RETAINING, SLLIT WASHER	

5-6. MECHANISM DECK ASSEMBLY (4)

◇ :+B 2X3 7-621-772-08



REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK
851	X-3943-886-1	TG1 ASSY		866	X-3943-897-1	LEVER ASSY, TRIGGER	
852	3-958-492-01	SPRING (TG1), TENSION COIL		867	A-6739-102-A	RKB BLOCK ASSY	876
853	X-3944-378-1	ROLLER ASSY, GUIDE		868	3-962-960-01	GEAR (T-K), IDLER	
854	A-6750-316-A	SHUTTLE (S) BLOCK ASSY		869	3-962-959-01	GEAR (S-K), IDLER	
855	A-6750-314-A	T BLOCK ASSY, SHUTTLE		870	3-958-533-01	CLAW, S WINDING	
856	3-958-504-01	ARM, FIXED RELEASE		871	3-958-532-01	ARM, S WINDING	
857	3-960-687-01	SPRING, LEAF (S), LOADING		872	3-958-534-01	SPRING, TORSION	
858	3-960-720-01	SCREW		873	3-962-874-01	O-RING	
859	3-960-688-01	SPRING, LEAF (T), LOADING		874	1-698-409-11	MOTOR, DC (CAPSTAN)	
860	X-3943-890-1	LEVER (S) ASSY, LOADING		875	3-960-272-01	SCREW (2. 6)	
861	3-960-448-01	SPRING (S), TORSION COIL		876	3-669-595-00	WASHER (2), STOPPER	
862	3-958-476-01	GEAR (S), LOADING		877	3-959-840-01	RUBBER, JOINT	
863	3-960-449-01	SPRING (T), TORSION COIL		878	3-958-529-01	SPRING (MOMENT), TENSION	
864	3-958-485-02	GEAR (T), LOADING					
865	X-3943-891-1	LEVER (T) ASSY, LOADING					

(f2)A

NOTE:

Les composants identifiés par une trame et une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

The components identified by shading and mark Δ are critical for safety. Replace only with part number specified.

SECTION 6

ELECTRICAL PARTS LIST

- The components identified by \blacksquare in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.

- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

When indicating parts by reference number, please include the board name.

- CAPACITORS
PF : $\mu\mu$ F

- There are some cases the reference number on one board overlaps on the other board. Therefore, when ordering parts by the reference number, please include the board name.

TV BLOCK

RESISTORS

- All resistors are in ohms
- F : nonflammable

REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK
* A-1241-250-A	F2 BOARD, COMPLETE			C113	1-126-933-11	ELECT	100MF 20% 10V
	*****			C114	1-164-004-11	CERAMIC CHIP	0.1MF 10% 16V
		<CAPACITOR>		C115	1-164-004-11	CERAMIC CHIP	0.1MF 10% 25V
				C116	1-164-004-11	CERAMIC CHIP	0.1MF 10% 16V
				C117	1-126-964-11	ELECT	10MF 20% 50V
C902	Δ 1-107-564-11	FILM	0.22MF 20% 300V	C118	1-164-337-11	CERAMIC CHIP	2.2MF 16V
		<CONNECTOR>		C119	1-164-346-11	CERAMIC CHIP	1MF 16V
CN903	* 1-580-843-11	PIN, CONNECTOR (POWER)		C120	1-164-232-11	CERAMIC CHIP	0.01MF 10% 50V
CN904	* 1-691-291-11	PIN, CONNECTOR (PC BOARD) 5P		C121	1-164-232-11	CERAMIC CHIP	0.01MF 10% 50V
		<FUSE>		C122	1-164-004-11	CERAMIC CHIP	0.1MF 10% 16V
F902	Δ 1-576-231-11	FUSE (H.B.C.) 4A/250V		C123	1-163-809-11	CERAMIC CHIP	0.047MF 10% 25V
	* 1-533-725-11	HOLDER, FUSE ; F902		C124	1-163-127-00	CERAMIC CHIP	270PF 5% 50V
		<SWITCH>		C125	1-164-004-11	CERAMIC CHIP	0.1MF 10% 16V
S901	Δ 1-571-433-31	SWITCH, PUSH (AC POWER)		C126	1-163-809-11	CERAMIC CHIP	0.047MF 10% 25V
				C127	1-163-127-00	CERAMIC CHIP	270PF 5% 50V
				C128	1-164-346-11	CERAMIC CHIP	1MF 16V (21V4B)
				C129	1-164-346-11	CERAMIC CHIP	1MF 16V (21V4B)
				C130	1-164-346-11	CERAMIC CHIP	1MF 16V
				C131	1-164-346-11	CERAMIC CHIP	1MF 16V (21V4B)
				C132	1-126-964-11	ELECT	10MF 20% 50V
				C133	1-126-964-11	ELECT	10MF 20% 50V
	* A-1297-858-A	A BOARD, COMPLETE (KV-21V4A/D/E)	*****	C134	1-126-933-11	ELECT	100MF 20% 16V
				C135	1-126-967-11	ELECT	47MF 20% 10V
	* A-1297-919-A	A BOARD, COMPLETE (KV-21V4U)	*****	C136	1-126-967-11	ELECT	47MF 20% 10V
				C137	1-126-964-11	ELECT	10MF 20% 50V (21V4B)
				C138	1-126-933-11	ELECT	100MF 20% 16V
	* A-1297-920-A	A BOARD, COMPLETE (KV-21V4B)	*****	C141	1-126-964-11	ELECT	10MF 20% 50V
				C142	1-124-925-11	ELECT	2.2MF 20% 50V
				C143	1-164-346-11	CERAMIC CHIP	1MF 16V
				C144	1-164-004-11	CERAMIC CHIP	0.1MF 10% 25V
	1-555-110-00	CABLE, PIN		C210	1-164-004-11	CERAMIC CHIP	0.1MF 10% 16V
	4-202-373-01	SPRING, IC		C212	1-164-004-11	CERAMIC CHIP	0.1MF 10% 25V
	4-382-854-11	SCREW (M3X10), P, SW (+)		C213	1-124-903-11	ELECT	1MF 20% 50V
	* 4-386-664-01	SPRING, IC		C214	1-164-161-11	CERAMIC CHIP	0.0022MF 10% 50V
		<CAPACITOR >		C215	1-163-809-11	CERAMIC CHIP	0.047MF 10% 25V
C006	1-126-965-11	ELECT	22MF 20% 50V	C216	1-126-942-61	ELECT	1000MF 20% 25V
C007	1-124-925-11	ELECT	2.2MF 20% 50V	C217	1-126-942-61	ELECT	1000MF 20% 25V
C018	1-126-935-11	ELECT	470MF 20% 16V	C250	1-164-004-11	CERAMIC CHIP	0.1MF 10% 16V
C029	1-110-489-11	CAPACITOR	1F 5.5V	C300	1-126-941-11	ELECT	470MF 20% 25V
C030	1-126-935-11	ELECT	470MF 20% 16V	C347	1-126-934-11	ELECT	220MF 20% 16V
C101	1-126-933-11	ELECT	100MF 20% 16V	C401	1-126-967-11	ELECT	47MF 20% 10V
C102	1-164-232-11	CERAMIC CHIP	0.01MF 10% 50V	C402	1-164-337-11	CERAMIC CHIP	2.2MF 16V
C104	1-126-964-11	ELECT	10MF 20% 50V	C403	1-126-967-11	ELECT	47MF 20% 10V
C105	1-164-232-11	CERAMIC CHIP	0.01MF 10% 50V	C408	1-126-967-11	ELECT	47MF 20% 10V
C106	1-126-933-11	ELECT	100MF 20% 10V	C409	1-163-005-11	CERAMIC CHIP	470PF 10% 50V
C107	1-164-004-11	CERAMIC CHIP	0.1MF 10% 16V	C410	1-126-935-11	ELECT	470MF 20% 6.3V
C108	1-126-965-11	ELECT	22MF 20% 50V	C411	1-126-967-11	ELECT	47MF 20% 10V
C109	1-164-232-11	CERAMIC CHIP	0.01MF 10% 50V	C412	1-164-337-11	CERAMIC CHIP	2.2MF 16V
C111	1-126-964-11	ELECT	10MF 20% 50V	C416	1-163-017-00	CERAMIC CHIP	0.0047MF 10% 50V
C112	1-164-232-11	CERAMIC CHIP	0.01MF 10% 50V	C417	1-163-005-11	CERAMIC CHIP	470PF 10% 50V

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Ne les remplacer que par une pièce portant le numéro spécifié.

REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK	
C418	1-126-933-11	ELECT	100MF 20%	16V		<FILTER >		
C501	1-126-963-11	ELECT	4.7MF 20%	50V	CF101	1-760-415-21	FILTER, CERAMIC (21V4A/B/D/E)	
C502	1-104-329-11	CERAMIC CHIP	0.1MF 10%	50V	CF101	1-760-571-21	FILTER, CERAMIC (21V4U)	
C503	1-107-894-11	ELECT	220MF 20%	35V	CF102	1-760-415-21	FILTER, CERAMIC (21V4A/B/D/E)	
C504	1-126-968-11	ELECT	100MF 20%	50V	CF102	1-760-571-21	FILTER, CERAMIC (21V4U)	
C505	1-126-971-11	ELECT	470MF 20%	50V		<LEAD PIN>		
C506	1-163-009-11	CERAMIC CHIP	0.001MF 10%	50V	CL101	4-352-844-01	PIN, LEAD, COATING	
C507	1-124-903-11	ELECT	1MF 20%	50V		<CONNECTOR >		
C508	1-130-785-11	MYLAR	0.47MF 10%	100V	CN002	* 1-564-515-11	PLUG, CONNECTOR 12P	
C510	1-163-001-11	CERAMIC CHIP	220PF 10%	50V	CN004	* 1-564-510-11	PLUG, CONNECTOR 7P	
C602	Δ 1-107-564-11	FILM	0.22MF 20%	300V	CN009	* 1-564-507-11	PLUG, CONNECTOR 4P	
C603	1-113-891-11	CERAMIC	0.0033MF 20%	250V	CN101	* 1-766-957-11	CONNECTOR, BOARD TO BOARD 20P	
C607	Δ 1-113-890-51	CERAMIC	0.0022MF 20%	250V	CN102	* 1-766-957-11	CONNECTOR, BOARD TO BOARD 20P	
C608	Δ 1-113-890-51	CERAMIC	0.0022MF 20%	250V	CN304	* 1-564-506-11	PLUG, CONNECTOR 3P	
C609	1-164-004-11	CERAMIC CHIP	0.1MF 10%	25V	CN601	* 1-580-843-11	PIN, CONNECTOR (POWER)	
C610	1-126-969-11	ELECT	220MF 20%	50V	CN602	* 1-508-765-00	PIN, CONNECTOR (5mm PITCH) 3P	
C611	1-136-619-11	FILM	0.0016MF 3%	2KV	CN603	1-508-786-00	PIN, CONNECTOR (5mm PITCH) 2P	
C612	1-164-735-11	CAPACITOR	0.0015MF 10%	500V	CN605	1-564-511-11	PLUG, CONNECTOR 8P	
C613	1-126-942-61	ELECT	1000MF 20%	25V	CN801	* 1-580-798-11	CONNECTOR PIN (DY) 6P	
C614	1-164-735-11	CAPACITOR	0.0015MF 10%	500V	CN805	1-695-915-11	TAB (CONTACT)	
C615	1-126-967-11	ELECT	47MF 20%	16V		<COMPOSITION CIRCUIT BLOCK >		
C616	1-126-967-11	ELECT	47MF 20%	16V	CP101	1-251-372-11	BOOSTER, RF	
C617	1-126-967-11	ELECT	47MF 20%	16V		<DIODE >		
C618	1-126-967-11	ELECT	47MF 20%	16V	D002	8-719-991-33	DIODE 1SS133T-77	
C619	1-104-664-11	ELECT	47MF 20%	25V	D010	8-719-200-82	DIODE 11ES2	
C620	1-102-074-00	CERAMIC	0.001MF 10%	50V	D011	8-719-991-33	DIODE 1SS133T-77	
C621	1-126-942-61	ELECT	1000MF 20%	25V	D101	8-759-157-40	IC uPC574J	
C622	1-164-735-11	CAPACITOR	0.0015MF 10%	500V	D311	8-719-991-33	DIODE 1SS133T-77	
C623	1-164-735-11	CAPACITOR	0.0015MF 10%	500V	D312	8-719-991-33	DIODE 1SS133T-77	
C624	1-125-508-11	ELECT(BLOCK)	220MF 20%	400V	D313	8-719-991-33	DIODE 1SS133T-77	
C625	1-126-937-11	ELECT	4700MF 20%	16V	D314	8-719-991-33	DIODE 1SS133T-77	
C626	1-107-652-11	ELECT	10MF 20%	250V	D401	8-719-109-97	DIODE RD6.8ESB2	
C627	1-164-735-11	CAPACITOR	0.0015MF 10%	500V	D402	8-719-010-34	DIODE UZ-4.7BSC	
C628	1-126-964-11	ELECT	10MF 20%	50V	D403	8-719-109-97	DIODE RD6.8ESB2	
C629	1-124-347-00	ELECT	100MF 20%	160V	D404	8-719-109-97	DIODE RD6.8ESB2	
C630	1-126-969-11	ELECT	220MF 20%	25V	D405	8-719-110-09	DIODE RD8.2ESB3	
C631	1-126-943-11	ELECT	2200MF 20%	25V	D406	8-719-110-13	DIODE RD9.1ESB2	
C632	1-126-967-11	ELECT	47MF 20%	16V	D407	8-719-109-97	DIODE RD6.8ESB2	
C637	1-126-933-11	ELECT	100MF 20%	10V	D408	8-719-110-14	DIODE RD9.1ESB3	
C638	1-126-967-11	ELECT	47MF 20%	16V	D409	8-719-110-14	DIODE RD9.1ESB3	
C639	1-104-665-11	ELECT	100MF 20%	25V	D501	8-719-302-43	DIODE EL1Z	
C640	1-136-601-11	FILM	0.01MF 10%	630V	D601	8-719-025-88	DIODE GBU4JL-6088	
C641	1-162-115-00	CERAMIC	330PF 10%	2KV	D603	8-719-991-33	DIODE 1SS133T-77	
C642	1-123-024-21	ELECT	33MF 160V		D604	8-719-046-78	DIODE EG-1Z-V1	
C643	1-126-963-11	ELECT	4.7MF 20%	50V	D605	8-719-302-43	DIODE EL1Z	
C800	1-107-959-11	ELECT	3.3MF 20%	250V	D606	8-719-057-04	DIODE RGP10GL-6527	
C801	1-129-746-00	FILM	0.039MF 10%	400V	D607	8-719-109-93	DIODE RD6.2ESB2	
C803	1-136-109-00	FILM	0.68MF 5%	200V	D608	8-719-311-31	DIODE RU-1P	
C804	1-124-902-00	ELECT	0.47MF 20%	50V	D609	8-719-981-00	DIODE ERC81-004	
C806	1-102-244-00	CERAMIC	220PF 10%	500V	D610	8-719-057-04	DIODE RGP10GL-6527	
C807	1-107-652-11	ELECT	10MF 20%	250V	D611	8-719-312-61	DIODE EU-1ZV1	
C808	1-136-079-00	FILM	0.01MF 3%	2KV	D612	8-719-312-61	DIODE EU-1ZV1	
C809	1-161-754-00	CERAMIC	0.001MF 10%	2KV	D613	8-719-928-08	DIODE ERD28-08S	
C810	1-136-203-11	FILM	0.01MF 10%	400V	D614	8-719-991-33	DIODE 1SS133T-77	
C811	1-102-228-00	CERAMIC	470PF 10%	500V	D615	8-719-914-43	DIODE DAN202K	
C814	1-163-020-00	CERAMIC CHIP	0.0082MF 10%	50V	D616	8-719-991-33	DIODE 1SS133T-77	
C815	1-162-116-00	CERAMIC	680PF 10%	2KV	D617	8-719-991-33	DIODE 1SS133T-77	
C816	1-162-114-00	CERAMIC	0.0047MF 2KV		D618	8-719-991-33	DIODE 1SS133T-77	
C817	1-136-559-11	MYLAR	0.0047MF 10%	400V	D619	8-719-991-33	DIODE 1SS133T-77	
C818	1-136-933-11	FILM	1MF 5%	100V	D620	8-719-046-78	DIODE EG-1Z-V1	
C819	1-162-318-11	CERAMIC	0.001MF 10%	500V				
C820	1-126-969-11	ELECT	220MF 20%	50V				
C822	1-104-696-11	FILM	0.015MF 10%	100V				
C823	1-106-375-12	MYLAR	0.022MF 10%	250V				
C824	1-106-367-00	MYLAR	0.01MF 10%	400V				
C825	1-163-257-11	CERAMIC CHIP	180PF 5%	50V				
C827	1-163-016-00	CERAMIC CHIP	0.0039MF 10%	50V				
C828	1-124-903-11	ELECT	1MF 20%	50V				
C829	1-163-989-11	CERAMIC CHIP	0.033MF 10%	25V				

Les composants identifies par une trame et une marque  sont critiques pour la securite. Ne les remplacer que par une piece portant le numero specifie.

The components identified by shading and mark \triangle are critical for safety.
Replace only with part number specified.

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A

REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK	
R136	1-216-073-00	METAL GLAZE 10K	5% 1/10W (21V4B)	R611	1-216-081-00	METAL GLAZE 22K	5% 1/10W	
R137	1-216-073-00	METAL GLAZE 10K	5% 1/10W (21V4B)	R612	1-249-420-11	CARBON 1.8K	5% 1/4W	
R138	1-216-025-91	METAL GLAZE 100	5% 1/10W (21V4A/D/E/U)	R613	1-249-429-11	CARBON 10K	5% 1/4W	
R139	1-216-025-91	METAL GLAZE 100	5% 1/10W (21V4A/D/E/U)	R614	1-216-061-00	METAL GLAZE 3.3K	5% 1/10W	
R208	1-216-049-91	METAL GLAZE 1K	5% 1/10W	R615	1-247-807-31	CARBON 100	5% 1/4W	
R209	1-216-049-91	METAL GLAZE 1K	5% 1/10W	R617	1-249-420-11	CARBON 1.8K	5% 1/4W	
R210	1-216-105-91	METAL GLAZE 220K	5% 1/10W	R618	1-249-417-11	CARBON 1K	5% 1/4W	
R211	1-216-295-91	CONDUCTOR, CHIP		R619	1-249-401-11	CARBON 47	5% 1/4W	
R238	1-216-063-91	METAL GLAZE 3.9K	5% 1/10W	R620	1-260-131-11	CARBON 470K	5% 1/2W	
R250	1-216-304-11	METAL GLAZE 3.3	5% 1/10W	R622	1-202-933-61	FUSIBLE 0.1	10% 1/2W F	
R302	1-216-025-91	METAL GLAZE 100	5% 1/10W	R623	1-215-882-00	METAL OXIDE 22	5% 2W F	
R335	1-216-049-91	METAL GLAZE 1K	5% 1/10W	R624	1-207-615-00	WIREWOUND 0.33	10% 2W F	
R342	1-216-041-00	METAL GLAZE 470	5% 1/10W	R625	1-249-388-11	CARBON 3.9	5% 1/4W F	
R343	1-216-041-00	METAL GLAZE 470	5% 1/10W	R626	1-249-407-11	CARBON 150	5% 1/4W	
R344	1-216-041-00	METAL GLAZE 470	5% 1/10W	R627	1-249-420-11	CARBON 1.8K	5% 1/4W	
R345	1-216-041-00	METAL GLAZE 470	5% 1/10W	R628	1-216-057-00	METAL GLAZE 2.2K	5% 1/10W	
R401	1-216-067-00	METAL GLAZE 5.6K	5% 1/10W	R629	1-216-393-00	METAL OXIDE 2.2	5% 3W F	
R402	1-216-061-00	METAL GLAZE 3.3K	5% 1/10W	R630	1-216-393-00	METAL OXIDE 2.2	5% 3W F	
R403	1-249-421-11	CARBON 2.2K	5% 1/4W	R631	1-215-925-11	METAL OXIDE 22K	5% 3W F	
R404	1-216-067-00	METAL GLAZE 5.6K	5% 1/10W	R633	1-216-065-00	METAL GLAZE 4.7K	5% 1/10W	
R405	1-216-025-91	METAL GLAZE 100	5% 1/10W	R634	1-249-417-11	CARBON 1K	5% 1/4W	
R406	1-216-025-91	METAL GLAZE 100	5% 1/10W	R635	1-216-071-00	METAL GLAZE 8.2K	5% 1/10W	
R407	1-216-033-00	METAL GLAZE 220	5% 1/10W	R636	1-216-363-00	METAL OXIDE 0.33	5% 2W F	
R408	1-216-033-00	METAL GLAZE 220	5% 1/10W	R637	1-249-412-11	CARBON 390	5% 1/4W F	
R409	1-216-033-00	METAL GLAZE 220	5% 1/10W	R638	1-247-885-00	CARBON 180K	5% 1/4W	
R410	1-216-057-00	METAL GLAZE 2.2K	5% 1/10W	R639	1-216-097-91	METAL GLAZE 100K	5% 1/10W	
R411	1-216-037-00	METAL GLAZE 330	5% 1/10W	R640	1-216-073-00	METAL GLAZE 10K	5% 1/10W	
R412	1-216-022-00	METAL GLAZE 75	5% 1/10W	R641	1-216-065-00	METAL GLAZE 4.7K	5% 1/10W	
R413	1-216-022-00	METAL GLAZE 75	5% 1/10W	R642	1-247-887-00	CARBON 220K	5% 1/4W	
R414	1-216-113-00	METAL GLAZE 470K	5% 1/10W	R643	1-216-051-00	METAL GLAZE 1.2K	5% 1/10W	
R415	1-216-067-00	METAL GLAZE 5.6K	5% 1/10W	R644	1-216-065-00	METAL GLAZE 4.7K	5% 1/10W	
R416	1-216-067-00	METAL GLAZE 5.6K	5% 1/10W	R645	1-216-065-00	METAL GLAZE 4.7K	5% 1/10W	
R417	1-216-022-00	METAL GLAZE 75	5% 1/10W	R646	1-215-863-11	METAL OXIDE 100	5% 1W F	
R418	1-216-022-00	METAL GLAZE 75	5% 1/10W	R647	1-216-073-00	METAL GLAZE 10K	5% 1/10W	
R419	1-216-022-00	METAL GLAZE 75	5% 1/10W	R800	1-215-912-11	METAL OXIDE 150	5% 3W F	
R420	1-216-022-00	METAL GLAZE 75	5% 1/10W	R802	1-216-025-91	METAL GLAZE 100	5% 1/10W	
R421	1-216-089-91	METAL GLAZE 47K	5% 1/10W	R803	1-216-081-00	METAL GLAZE 22K	5% 1/10W	
R422	1-216-081-00	METAL GLAZE 22K	5% 1/10W	R804	1-217-778-11	FUSIBLE 1K	5% 1W F	
R423	1-216-081-00	METAL GLAZE 22K	5% 1/10W	R806	1-216-349-00	METAL OXIDE 1	5% 1W F	
R425	1-216-071-00	METAL GLAZE 8.2K	5% 1/10W	R807	1-216-013-00	METAL GLAZE 33	5% 1/10W	
R426	1-216-085-00	METAL GLAZE 33K	5% 1/10W	R808	1-216-440-00	METAL OXIDE 18K	5% 1W F	
R430	1-216-037-00	METAL GLAZE 330	5% 1/10W	R809	1-215-917-11	METAL OXIDE 1K	5% 3W F	
R431	1-216-049-91	METAL GLAZE 1K	5% 1/10W	R810	1-247-895-91	CARBON 470K	5% 1/4W F	
R432	1-216-025-91	METAL GLAZE 100	5% 1/10W	R811	1-215-890-11	METAL OXIDE 470	5% 2W F	
R433	1-216-049-91	METAL GLAZE 1K	5% 1/10W	R812	1-215-869-11	METAL OXIDE 1K	5% 1W F	
R434	1-216-081-00	METAL GLAZE 22K	5% 1/10W	R814	1-249-377-11	CARBON 0.47	5% 1/4W F	
R435	1-208-806-11	METAL CHIP 10K	0.50% 1/10W	R815	1-249-441-11	CARBON 100K	5% 1/4W	
R501	1-216-677-11	METAL CHIP 12K	0.50% 1/10W	R817	1-216-447-00	METAL OXIDE 27	5% 2W F	
R502	1-216-081-00	METAL GLAZE 22K	5% 1/10W	R818	1-215-877-11	METAL OXIDE 22K	5% 1W F	
R503	1-216-095-00	METAL GLAZE 82K	5% 1/10W	R819	1-249-441-11	CARBON 100K	5% 1/4W	
R504	1-216-075-00	METAL GLAZE 12K	5% 1/10W	R820	1-249-423-11	CARBON 3.3K	5% 1/4W F	
R505	1-216-081-00	METAL GLAZE 22K	5% 1/10W	R821	1-260-117-11	CARBON 33K	5% 1/2W	
R506	1-216-081-00	METAL GLAZE 22K	5% 1/10W	R822	1-216-109-00	METAL GLAZE 330K	5% 1/10W	
R507	1-216-350-11	METAL OXIDE 1.2	5% 1W F	R823	1-249-413-11	CARBON 470	5% 1/4W	
R508	1-215-865-11	METAL OXIDE 220	5% 1W F	R824	1-216-125-00	METAL GLAZE 1.5M	5% 1/10W	
R509	1-249-387-11	CARBON 3.3	5% 1/4W F	R826	1-216-105-91	METAL GLAZE 220K	5% 1/10W	
<VARIABLE RESISTOR >								
R601	\triangle 1-202-961-11	WIREWOUND 1.8	5% 10W	RV801	1-241-630-11	RES, ADJ, CARBON 10K		
R602	\triangle 1-260-135-91	CARBON 1M	5% 1/2W					
R603	\triangle 1-218-265-21	METAL 8.2M	5% 1W					
R604	1-216-490-11	METAL OXIDE 39K	5% 3W F					
R605	1-260-099-11	CARBON 1K	5% 1/2W					
<RELAY >								
R607	1-216-069-00	METAL GLAZE 6.8K	5% 1/10W	RY600	1-755-018-11	RELAY		
R608	1-216-069-00	METAL GLAZE 6.8K	5% 1/10W	RY601	\triangle 1-755-018-11	RELAY		
R609	1-216-490-11	METAL OXIDE 39K	5% 3W F					
R610	1-216-490-11	METAL OXIDE 39K	5% 3W F					

AC(h3)

Les composants identifiés par une trame et une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

The components identified by shading and mark Δ are critical for safety. Replace only with part number specified.

REF. NO.	PART NO.	DESCRIPTION	REMARK
<TRANSFORMER >			

T601	Δ 1-421-776-21	LFT	
T602	Δ 1-421-776-21	LFT	
T603	Δ 1-429-219-21	TRANSFORMER, CONVERTER	
T801	1-437-090-31	HDT	
T802	Δ 1-453-199-11	TRANSFORMER ASSY, FLYBACK	NX-1741//U2A

<THERMISTOR >

THP601	Δ 1-810-961-11	THERMISTOR, POSITIVE	
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<TUNER >

TU101	Δ 1-693-338-21	TUNER/VIF (21V4A/D/E)	
TU101	Δ 1-693-339-21	TUNER/VIF (21V4U)	
TU101	Δ 1-693-340-21	TUNER/VIF (21V4B)	
TU102	Δ 1-693-338-21	TUNER/VIF (21V4A/D/E)	
TU102	Δ 1-693-339-21	TUNER/VIF (21V4U)	

TU102	Δ 1-693-340-21	TUNER/VIF (21V4B)	
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* A-1331-560-A C BOARD, COMPLETE

<CAPACITOR>

C700	1-136-189-00	FILM	0.1MF	10%	250V	
C701	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V	
C702	1-163-139-00	CERAMIC CHIP	820PF	5%	50V	
C703	1-163-139-00	CERAMIC CHIP	820PF	5%	50V	
C704	1-163-005-11	CERAMIC CHIP	470PF	10%	50V	
C705	1-163-005-11	CERAMIC CHIP	470PF	10%	50V	
C706	1-163-005-11	CERAMIC CHIP	470PF	10%	50V	
C707	1-136-189-00	FILM	0.1MF	10%	250V	
C710	1-126-967-11	ELECT	47MF	20%	16V	
C714	1-162-318-11	CERAMIC	0.001MF	10%	500V	
C722	1-162-114-00	CERAMIC	0.0047MF		2KV	

<CONNECTOR>

CNC71	* 1-564-509-11	PLUG, CONNECTOR 6P	
CNC72	* 1-564-509-11	PLUG, CONNECTOR 6P	
CNC74	1-695-915-11	TAB (CONTACT)	

<DIODE>

D701	8-719-991-33	DIODE 1SS133T-77	
D702	8-719-991-33	DIODE 1SS133T-77	
D703	8-719-991-33	DIODE 1SS133T-77	
D704	8-719-991-33	DIODE 1SS133T-77	
D705	8-719-991-33	DIODE 1SS133T-77	
D706	8-719-991-33	DIODE 1SS133T-77	
D707	8-719-991-33	DIODE 1SS133T-77	
D708	8-719-991-33	DIODE 1SS133T-77	
D709	8-719-991-33	DIODE 1SS133T-77	
D714	8-719-991-33	DIODE 1SS133T-77	
D715	8-719-054-81	DIODE 1SS292T-77	
D716	8-719-991-33	DIODE 1SS133T-77	
D717	8-719-054-81	DIODE 1SS292T-77	
D718	8-719-991-33	DIODE 1SS133T-77	
D719	8-719-054-81	DIODE 1SS292T-77	

<JACK>

J701	Δ 1-526-990-22	SOCKET, PICTURE TUBE	
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REF. NO.	PART NO.	DESCRIPTION	REMARK
<TRANSISTOR>			

Q701	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q702	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q703	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q704	8-729-906-70	TRANSISTOR BF871-127	
Q705	8-729-906-70	TRANSISTOR BF871-127	
Q706	8-729-906-70	TRANSISTOR BF871-127	
Q707	8-729-200-17	TRANSISTOR 2SA1091-O	
Q708	8-729-200-17	TRANSISTOR 2SA1091-O	
Q709	8-729-200-17	TRANSISTOR 2SA1091-O	

<RESISTOR>

R701	1-216-198-91	METAL GLAZE 1K	5%	1/8W
R702	1-249-417-11	CARBON 1K	5%	1/4W
R705	1-216-158-00	METAL GLAZE 22	5%	1/8W
R706	1-216-009-00	METAL GLAZE 22	5%	1/10W
R707	1-216-158-00	METAL GLAZE 22	5%	1/8W
R708	1-216-033-00	METAL GLAZE 220	5%	1/10W
R709	1-216-033-00	METAL GLAZE 220	5%	1/10W
R710	1-216-033-00	METAL GLAZE 220	5%	1/10W
R711	1-216-049-91	METAL GLAZE 1K	5%	1/10W
R714	1-216-198-91	METAL GLAZE 1K	5%	1/8W
R715	1-249-417-11	CARBON 1K	5%	1/4W
R716	1-216-049-91	METAL GLAZE 1K	5%	1/10W
R717	1-260-105-11	CARBON 3.3K	5%	1/2W
R718	1-260-105-11	CARBON 3.3K	5%	1/2W
R719	1-260-105-11	CARBON 3.3K	5%	1/2W
R720	1-216-487-11	METAL OXIDE 12K	5%	3W F
R721	1-216-487-11	METAL OXIDE 12K	5%	3W F
R722	1-216-487-11	METAL OXIDE 12K	5%	3W F
R725	1-260-133-11	CARBON 680K	5%	1/2W
R726	1-260-129-11	CARBON 330K	5%	1/2W
R727	1-260-117-11	CARBON 33K	5%	1/2W
R729	1-216-350-11	METAL OXIDE 1.2	5%	1W F
R731	1-260-131-11	CARBON 470K	5%	1/2W
R734	1-216-033-00	METAL GLAZE 220	5%	1/10W
R735	1-216-033-00	METAL GLAZE 220	5%	1/10W
R736	1-247-815-91	CARBON 220	5%	1/4W
R744	1-260-103-11	CARBON 2.2K	5%	1/2W
R745	1-260-103-11	CARBON 2.2K	5%	1/2W
R746	1-260-103-11	CARBON 2.2K	5%	1/2W

<VARIABLE RESISTOR>

RV702	1-241-656-21	RES, ADJ, METAL FILM 110M	
RV703	1-230-641-11	RES, ADJ, METAL GLAZE 2.2M	

REF. NO.	PART NO.	DESCRIPTION	REMARK
<CAPACITOR>			
* A-1372-251-A H3 BOARD, COMPLETE			
C350	1-126-160-11	ELECT 1MF	20%
C351	1-101-003-00	CERAMIC 0.0047MF	50V
C352	1-101-003-00	CERAMIC 0.0047MF	50V
C353	1-124-589-11	ELECT 47MF	20%
C354	1-102-074-00	CERAMIC 0.001MF	10%
C355	1-101-003-00	CERAMIC 0.0047MF	50V
<CONNECTOR>			
CN350	* 1-564-527-11	PLUG, CONNECTOR 12P	
CN351	* 1-564-521-11	PLUG, CONNECTOR 6P	
CN352	* 1-564-522-11	PLUG, CONNECTOR 7P	
CN353	* 1-564-519-11	PLUG, CONNECTOR 4P	

(h3)(h4)(yc)

REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK				
<DIODE>											
D350	8-719-053-43	DIODE SLR-325VCT31		IC351	1-466-833-11	RAY-CATCHER BLOCK, REMOCON					
D351	8-719-048-77	DIODE SLR-325DCA47									
D352	8-719-053-43	DIODE SLR-325VCT31		<RESISTOR>							
D353	8-719-053-43	DIODE SLR-325VCT31		R301	1-216-045-00	METAL GLAZE 680	5%	1/10W			
D354	8-719-053-43	DIODE SLR-325VCT31		R302	1-216-051-00	METAL GLAZE 1.2K	5%	1/10W			
D355	8-719-921-54	DIODE MTZJ-6.2B		R303	1-216-055-00	METAL GLAZE 1.8K	5%	1/10W			
D356	8-719-921-54	DIODE MTZJ-6.2B		R304	1-216-061-00	METAL GLAZE 3.3K	5%	1/10W			
D357	8-719-921-54	DIODE MTZJ-6.2B		R305	1-216-045-00	METAL GLAZE 680	5%	1/10W			
D359	8-719-921-54	DIODE MTZJ-6.2B		R306	1-216-051-00	METAL GLAZE 1.2K	5%	1/10W			
D360	8-719-921-54	DIODE MTZJ-6.2B		R307	1-216-055-00	METAL GLAZE 1.8K	5%	1/10W			
				R308	1-216-061-00	METAL GLAZE 3.3K	5%	1/10W			
				R309	1-216-057-00	METAL GLAZE 2.2K	5%	1/10W			
<JACK>											
J350	1-691-293-21	JACK		<SWITCH>							
J351	1-695-451-11	JACK, PIN 2P		S301	1-572-200-11	SWITCH, KEYBOARD					
				S302	1-572-200-11	SWITCH, KEYBOARD					
L350	1-410-509-11	INDUCTOR 10UH		S303	1-572-200-11	SWITCH, KEYBOARD					
L352	1-410-509-11	INDUCTOR 10UH		S304	1-572-200-11	SWITCH, KEYBOARD					
L353	1-414-142-11	INDUCTOR 1UH		S305	1-572-200-11	SWITCH, KEYBOARD					
				S306	1-572-200-11	SWITCH, KEYBOARD					
				S307	1-572-200-11	SWITCH, KEYBOARD					
				S308	1-572-200-11	SWITCH, KEYBOARD					
				S309	1-572-200-11	SWITCH, KEYBOARD					

				<COIL>							
L350	1-410-509-11	INDUCTOR 10UH									
L352	1-410-509-11	INDUCTOR 10UH									
L353	1-414-142-11	INDUCTOR 1UH									
				<RESISTOR>							
R350	1-216-174-00	METAL GLAZE 100	5%	R351	1-216-025-91	METAL GLAZE 100	5%	1/10W			
R352	1-216-171-00	METAL GLAZE 75	5%	R353	1-216-051-00	METAL GLAZE 1.2K	5%	1/10W			
R354	1-216-051-00	METAL GLAZE 1.2K	5%	R355	1-216-055-00	METAL GLAZE 1.8K	5%	1/10W			
R356	1-216-061-00	METAL GLAZE 3.3K	5%	R357	1-216-071-00	METAL GLAZE 8.2K	5%	1/10W			
R358	1-216-071-00	METAL GLAZE 8.2K	5%	R359	1-216-027-00	METAL GLAZE 120	5%	1/10W			
R360	1-216-071-00	METAL GLAZE 8.2K	5%	R361	1-216-045-00	METAL GLAZE 680	5%	1/10W			
R362	1-216-025-91	METAL GLAZE 100	5%	R363	1-216-025-91	METAL GLAZE 100	5%	1/10W			
				<SWITCH>							
S350	1-572-200-11	SWITCH, KEYBOARD									
S351	1-572-200-11	SWITCH, KEYBOARD									
S352	1-572-200-11	SWITCH, KEYBOARD									
S353	1-572-908-11	SWITCH, SLIDE									
S355	1-572-200-11	SWITCH, KEYBOARD									
				<CAPACITOR>							
S356	1-572-200-11	SWITCH, KEYBOARD		C001	1-163-038-91	CERAMIC CHIP 0.1MF		25V			
S357	1-572-907-11	SWITCH, SLIDE		C002	1-163-038-91	CERAMIC CHIP 0.1MF		25V			
S358	1-554-118-21	SWITCH, PUSH (1 KEY)		C003	1-163-243-11	CERAMIC CHIP 47PF	5%	50V			
				C004	1-163-243-11	CERAMIC CHIP 47PF	5%	50V			
				C005	1-126-206-11	ELECT 100MF	20%	6.3V			
				C008	1-163-809-11	CERAMIC CHIP 0.047MF	10%	25V			
				C009	1-163-989-11	CERAMIC CHIP 0.033MF	10%	25V			
				C010	1-163-989-11	CERAMIC CHIP 0.033MF	10%	25V			
				C011	1-163-121-00	CERAMIC CHIP 150PF	5%	50V			
				C012	1-164-161-11	CERAMIC CHIP 0.0022MF	10%	50V			
								(21V4B/D/U)			
				* A-1372-252-A H4 BOARD, COMPLETE							
				<CAPACITOR>							
C301	1-126-964-11	ELECT 10MF 20% 50V		C018	1-126-206-11	ELECT 100MF	20%	6.3V			
				C019	1-163-038-91	CERAMIC CHIP 0.1MF		25V			
				C020	1-163-227-00	CERAMIC CHIP 10PF	0.25PF	50V			
				C021	1-163-227-00	CERAMIC CHIP 10PF	0.25PF	50V			
				C030	1-126-206-11	ELECT 100MF	20%	6.3V			
				C031	1-163-038-91	CERAMIC CHIP 0.1MF		25V			
				C033	1-126-206-11	ELECT 100MF	20%	6.3V			
				C034	1-126-206-11	ELECT 100MF	20%	6.3V			
				C098	1-163-038-91	CERAMIC CHIP 0.1MF		25V			
				C099	1-163-038-91	CERAMIC CHIP 0.1MF		25V			
								(21V4B/D/U)			

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REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK
C301	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V		<FILTER>	
C302	1-163-038-91	CERAMIC CHIP 0.1MF		25V			
C304	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V	CF001	1-578-689-21	VIBRATOR
C305	1-128-006-11	ELECT CHIP 4.7MF	20%	25V	CF002	1-767-300-21	VIBRATOR, CRYSTAL
C306	1-136-496-51	FILM 0.082MF	5%	50V			
C307	1-163-809-11	CERAMIC CHIP 0.047MF	10%	25V		<CONNECTOR>	
C308	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V			
C309	1-128-006-11	ELECT CHIP 4.7MF	20%	25V	CN001	* 1-766-954-11	CONNECTOR, BOARD TO BOARD 20P
C310	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V	CN002	* 1-766-954-11	CONNECTOR, BOARD TO BOARD 20P
C312	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V	CN003	* 1-564-521-11	PLUG, CONNECTOR 6P
C313	1-163-145-00	CERAMIC CHIP 0.0015MF	5%	50V	CN005	* 1-564-521-11	PLUG, CONNECTOR 6P
C314	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V	CN007	* 1-564-520-11	PLUG, CONNECTOR 5P
C315	1-163-038-91	CERAMIC CHIP 0.1MF		25V	CN803	* 1-564-521-11	PLUG, CONNECTOR 6P
C316	1-163-038-91	CERAMIC CHIP 0.1MF		25V			
C317	1-163-038-91	CERAMIC CHIP 0.1MF		25V			
C318	1-163-038-91	CERAMIC CHIP 0.1MF		25V		<DIODE>	
C319	1-163-038-91	CERAMIC CHIP 0.1MF		25V	D003	8-719-017-09	DIODE 02DZ6.2-TPH3
C320	1-163-038-91	CERAMIC CHIP 0.1MF		25V	D004	8-719-420-90	DIODE MA8051-M
C321	1-128-006-11	ELECT CHIP 4.7MF	20%	25V	D006	8-719-988-62	DIODE 1SS355
C323	1-163-231-11	CERAMIC CHIP 15PF	5%	50V	D301	8-719-988-62	DIODE 1SS355
C324	1-163-113-00	CERAMIC CHIP 68PF	5%	50V	D302	8-719-988-62	DIODE 1SS355
C325	1-164-505-11	CERAMIC CHIP 2.2MF		16V	D303	8-719-988-62	DIODE 1SS355
C326	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V	D304	8-719-988-62	DIODE 1SS355
C328	1-107-823-11	CERAMIC CHIP 0.47MF	10%	25V	D305	8-719-988-62	DIODE 1SS355
C329	1-164-182-11	CERAMIC CHIP 0.0033MF	10%	50V	D306	8-719-988-62	DIODE 1SS355
C330	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V	D307	8-719-988-62	DIODE 1SS355 (21V4B)
C331	1-163-005-11	CERAMIC CHIP 470PF	10%	50V	D308	8-719-988-62	DIODE 1SS355 (21V4B)
C332	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V	D310	8-719-988-62	DIODE 1SS355
C333	1-164-505-11	CERAMIC CHIP 2.2MF		25V	D311	8-719-988-62	DIODE 1SS355
C334	1-126-206-11	ELECT 100MF	20%	6.3V	D501	8-719-988-62	DIODE 1SS355
C335	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V		<FERRITE BEAD>	
C336	1-164-346-11	CERAMIC CHIP 1MF		16V			
C337	1-164-346-11	CERAMIC CHIP 1MF		16V			
C338	1-126-206-11	ELECT 100MF	20%	6.3V	FB001	1-414-135-11	INDUCTOR CHIP 0UH
C339	1-164-505-11	CERAMIC CHIP 2.2MF		25V	FB002	1-414-135-11	INDUCTOR CHIP 0UH
C340	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V	FB003	1-414-135-11	INDUCTOR CHIP 0UH
C344	1-126-206-11	ELECT 100MF	20%	6.3V	FB004	1-414-135-11	INDUCTOR CHIP 0UH
C345	1-163-137-00	CERAMIC CHIP 680PF	5%	50V	FB005	1-414-135-11	INDUCTOR CHIP 0UH
C348	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V	FB006	1-414-135-11	INDUCTOR CHIP 0UH
C349	1-128-008-11	ELECT CHIP 3.3MF	20%	35V (21V4B)	FB007	1-414-135-11	INDUCTOR CHIP 0UH
				FB012	1-414-135-11	INDUCTOR CHIP 0UH	
				FB301	1-414-135-11	INDUCTOR CHIP 0UH	
				FB302	1-414-135-11	INDUCTOR CHIP 0UH	
C355	1-163-005-11	CERAMIC CHIP 470PF	10%	50V			
C356	1-163-251-11	CERAMIC CHIP 100PF	5%	50V	FB303	1-414-135-11	INDUCTOR CHIP 0UH
C357	1-163-038-91	CERAMIC CHIP 0.1MF		25V	FB304	1-414-135-11	INDUCTOR CHIP 0UH
C358	1-126-206-11	ELECT 100MF	20%	6.3V	FB306	1-414-135-11	INDUCTOR CHIP 0UH
C380	1-163-251-11	CERAMIC CHIP 100PF	5%	50V	FB307	1-414-135-11	INDUCTOR CHIP 0UH
C502	1-163-037-11	CERAMIC CHIP 0.022MF	10%	50V		<FILTER>	
C503	1-163-037-11	CERAMIC CHIP 0.022MF	10%	50V			
C504	1-163-125-00	CERAMIC CHIP 220PF	5%	50V			
C505	1-163-231-11	CERAMIC CHIP 15PF	5%	50V	FL001	1-239-899-21	FILTER, CHIP EMI
C506	1-163-231-11	CERAMIC CHIP 15PF	5%	50V	FL002	1-239-899-21	FILTER, CHIP EMI (21V4B/D/U)
C507	1-126-206-11	ELECT 100MF	20%	6.3V	FL003	1-239-899-21	FILTER, CHIP EMI
C508	1-163-038-91	CERAMIC CHIP 0.1MF		25V	FL004	1-239-899-21	FILTER, CHIP EMI
C509	1-163-125-00	CERAMIC CHIP 220PF	5%	50V	FL301	1-239-899-21	FILTER, CHIP EMI
C510	1-163-038-91	CERAMIC CHIP 0.1MF		25V			
C511	1-163-038-91	CERAMIC CHIP 0.1MF		25V	FL302	1-239-899-21	FILTER, CHIP EMI
C512	1-163-038-91	CERAMIC CHIP 0.1MF		25V	FL303	1-239-899-21	FILTER, CHIP EMI
C513	1-126-206-11	ELECT 100MF	20%	6.3V	FL501	1-239-899-21	FILTER, CHIP EMI
C514	1-163-038-91	CERAMIC CHIP 0.1MF		25V			
C515	1-163-038-91	CERAMIC CHIP 0.1MF		25V	FL502	1-239-899-21	FILTER, CHIP EMI
C516	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V	FL503	1-239-899-21	FILTER, CHIP EMI
C517	1-163-038-91	CERAMIC CHIP 0.1MF		25V			
C518	1-126-206-11	ELECT 100MF	20%	6.3V	FL504	1-239-899-21	FILTER, CHIP EMI
C519	1-128-004-11	ELECT CHIP 10MF	20%	16V		<IC>	
C523	1-163-038-91	CERAMIC CHIP 0.1MF		25V			
C527	1-126-206-11	ELECT 100MF	20%	6.3V	IC001	8-752-876-77	IC CXP85460-028Q-TL
C531	1-128-004-11	ELECT CHIP 10MF	20%	16V	IC002	8-759-343-77	IC S-3510ACFJ-TB
C851	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V	IC003	8-759-289-73	IC SDA5649X-GEG (21V4B/D/U)
				IC005	8-759-378-26	IC ST24C16FM6TR	
				IC006	8-759-074-40	IC PST572DMT-T1	
				IC301	8-759-333-45	IC MC44002P	

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REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK
IC302	8-759-333-46	IC MC44140P		R031	1-216-049-91	METAL GLAZE 1K	5% 1/10W
IC303	8-759-234-77	IC TC4S66F (21V4B/D/E/U)		R033	1-216-049-91	METAL GLAZE 1K	5% 1/10W
IC501	8-759-295-92	IC CF72416DW-R		R034	1-216-049-91	METAL GLAZE 1K	5% 1/10W
IC502	8-759-399-27	IC CF70204N		R035	1-216-049-91	METAL GLAZE 1K	5% 1/10W
IC503	8-759-300-71	IC HD14053BFP		R036	1-216-033-00	METAL GLAZE 220	5% 1/10W
<COIL>				R037	1-216-049-91	METAL GLAZE 1K	5% 1/10W
L002	1-412-954-11	INDUCTOR 18UH		R038	1-216-025-91	METAL GLAZE 100	5% 1/10W
L003	1-412-058-11	INDUCTOR CHIP 10UH (21V4B/D/U)		R039	1-216-025-91	METAL GLAZE 100	5% 1/10W
L004	1-412-058-11	INDUCTOR CHIP 10UH		R040	1-216-025-91	METAL GLAZE 100	5% 1/10W
L301	1-412-058-11	INDUCTOR CHIP 10UH		R041	1-216-025-91	METAL GLAZE 100	5% 1/10W
L302	1-412-058-11	INDUCTOR CHIP 10UH		R042	1-216-025-91	METAL GLAZE 100	5% 1/10W
L399	1-412-058-11	INDUCTOR CHIP 10UH		R043	1-216-025-91	METAL GLAZE 100	5% 1/10W
L501	1-412-058-11	INDUCTOR CHIP 10UH		R044	1-216-025-91	METAL GLAZE 100	5% 1/10W
<TRANSISTOR>				R045	1-216-025-91	METAL GLAZE 100	5% 1/10W
Q005	8-729-027-59	TRANSISTOR DTC144EKA-T146		R046	1-216-049-91	METAL GLAZE 1K	5% 1/10W
Q006	8-729-027-59	TRANSISTOR DTC144EKA-T146		R047	1-216-065-00	METAL GLAZE 4.7K	5% 1/10W (21V4A/E)
Q300	8-729-900-53	TRANSISTOR DTC114EK		R049	1-216-041-00	METAL GLAZE 470	5% 1/10W
Q301	8-729-920-74	TRANSISTOR 2SC2412K-QR		R050	1-216-049-91	METAL GLAZE 1K	5% 1/10W
Q302	8-729-900-53	TRANSISTOR DTC114EK		R052	1-216-041-00	METAL GLAZE 470	5% 1/10W (21V4B/D/U)
Q303	8-729-900-53	TRANSISTOR DTC114EK		R053	1-216-049-91	METAL GLAZE 1K	5% 1/10W
Q304	8-729-900-53	TRANSISTOR DTC114EK		R054	1-216-049-91	METAL GLAZE 1K	5% 1/10W
Q305	8-729-900-53	TRANSISTOR DTC114EK		R055	1-216-073-00	METAL GLAZE 10K	5% 1/10W
Q306	8-729-900-53	TRANSISTOR DTC114EK		R056	1-216-065-00	METAL GLAZE 4.7K	5% 1/10W
Q307	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R (21V4B)		R057	1-216-049-91	METAL GLAZE 1K	5% 1/10W
Q308	8-729-027-39	TRANSISTOR 2SA1037AK-T146-R (21V4B)		R058	1-216-049-91	METAL GLAZE 1K	5% 1/10W
Q309	8-729-027-39	TRANSISTOR DTA144TKA-T146 (21V4B/D/E/U)		R059	1-216-049-91	METAL GLAZE 1K	5% 1/10W
Q310	8-729-027-39	TRANSISTOR DTA144TKA-T146 (21V4B/D/E/U)		R060	1-216-065-00	METAL GLAZE 4.7K	5% 1/10W
Q503	8-729-027-59	TRANSISTOR DTC144EKA-T146		R061	1-216-073-00	METAL GLAZE 10K	5% 1/10W
Q504	8-729-027-39	TRANSISTOR DTA144TKA-T146		R064	1-216-049-91	METAL GLAZE 1K	5% 1/10W
Q505	8-729-027-39	TRANSISTOR DTA144TKA-T146		R065	1-216-049-91	METAL GLAZE 1K	5% 1/10W
<RESISTOR>				R066	1-216-049-91	METAL GLAZE 1K	5% 1/10W
R001	1-216-081-00	METAL GLAZE 22K	5% 1/10W	R068	1-216-065-00	METAL GLAZE 4.7K	5% 1/10W
R002	1-216-073-00	METAL GLAZE 10K	5% 1/10W (21V4B/D/U)	R070	1-216-065-00	METAL GLAZE 4.7K	5% 1/10W
R003	1-216-025-91	METAL GLAZE 100	5% 1/10W	R073	1-216-065-00	METAL GLAZE 4.7K	5% 1/10W
R004	1-216-025-91	METAL GLAZE 100	5% 1/10W	R078	1-216-049-91	METAL GLAZE 1K	5% 1/10W
R005	1-216-025-91	METAL GLAZE 100	5% 1/10W	R080	1-216-041-00	METAL GLAZE 470	5% 1/10W
R006	1-216-073-00	METAL GLAZE 10K	5% 1/10W (21V4B/U)	R083	1-216-069-00	METAL GLAZE 6.8K	5% 1/10W
R007	1-216-073-00	METAL GLAZE 10K	5% 1/10W (21V4A/D/E)	R084	1-216-025-91	METAL GLAZE 100	5% 1/10W (21V4B/D/U)
R008	1-216-073-00	METAL GLAZE 10K	5% 1/10W (21V4A/B)	R086	1-216-033-00	METAL GLAZE 220	5% 1/10W
R009	1-216-073-00	METAL GLAZE 10K	5% 1/10W (21V4D/E/U)	R087	1-216-097-91	METAL GLAZE 100K	5% 1/10W (21V4B/D/U)
R011	1-216-073-00	METAL GLAZE 10K	5% 1/10W (21V4A/E)	R088	1-216-123-11	METAL GLAZE 1.2M	5% 1/10W (21V4B/D/U)
R012	1-216-049-91	METAL GLAZE 1K	5% 1/10W	R089	1-216-025-91	METAL GLAZE 100	5% 1/10W (21V4B/D/U)
R015	1-216-033-00	METAL GLAZE 220	5% 1/10W	R090	1-216-069-00	METAL GLAZE 6.8K	5% 1/10W (21V4B/D/U)
R018	1-216-049-91	METAL GLAZE 1K	5% 1/10W	R091	1-216-123-11	METAL GLAZE 1.2M	5% 1/10W (21V4B/D/U)
R019	1-216-049-91	METAL GLAZE 1.0K	5% 1/10W	R092	1-216-121-91	METAL GLAZE 1M	5% 1/10W (21V4B/D/U)
R020	1-216-033-00	METAL GLAZE 220	5% 1/10W	R093	1-216-057-00	METAL GLAZE 2.2K	5% 1/10W (21V4B/D/U)
R021	1-216-065-00	METAL GLAZE 4.7K	5% 1/10W	R094	1-216-065-00	METAL GLAZE 4.7K	5% 1/10W (21V4B/D/U)
R022	1-216-049-91	METAL GLAZE 1K	5% 1/10W	R095	1-216-065-00	METAL GLAZE 4.7K	5% 1/10W (21V4B/D/U)
R023	1-216-049-91	METAL GLAZE 1K	5% 1/10W	R096	1-216-025-91	METAL GLAZE 100	5% 1/10W (21V4B/D/U)
R024	1-216-041-00	METAL GLAZE 470	5% 1/10W	R097	1-216-025-91	METAL GLAZE 100	5% 1/10W (21V4B/D/U)
R025	1-216-049-91	METAL GLAZE 1K	5% 1/10W	R303	1-208-823-11	METAL CHIP 51K	0.50% 1/10W
R026	1-216-065-00	METAL GLAZE 4.7K	5% 1/10W	R304	1-216-025-91	METAL GLAZE 100	5% 1/10W (21V4B/D/U)
R027	1-216-049-91	METAL GLAZE 1K	5% 1/10W				
R028	1-216-049-91	METAL GLAZE 1K	5% 1/10W				
R029	1-216-049-91	METAL GLAZE 1K	5% 1/10W				
R030	1-216-049-91	METAL GLAZE 1K	5% 1/10W				

(yc)

Les composants identifiés par une trame et une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

The components identified by shading and mark Δ are critical for safety. Replace only with part number specified.

REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK
R305	1-216-025-91	METAL GLAZE 100	5%	1/10W		<TEST PIN>	
R307	1-216-121-91	METAL GLAZE 1M	5%	1/10W			
R308	1-216-065-00	METAL GLAZE 4.7K	5%	1/10W	TP001	1-535-757-11	CHIP, CHECKER
R309	1-216-121-91	METAL GLAZE 1M	5%	1/10W	TP002	1-535-757-11	CHIP, CHECKER
R310	1-216-089-91	METAL GLAZE 47K	5%	1/10W		<CRYSTAL>	
R311	1-216-093-00	METAL GLAZE 68K	5%	1/10W	X302	1-579-613-11	VIBRATOR, CRYSTAL
R312	1-216-089-91	METAL GLAZE 47K	5%	1/10W	X501	1-567-495-11	OSCILLATOR, CRYSTAL
R313	1-216-045-00	METAL GLAZE 680	5%	1/10W			
R314	1-216-045-00	METAL GLAZE 680	5%	1/10W			
R315	1-216-045-00	METAL GLAZE 680	5%	1/10W			
R316	1-216-033-00	METAL GLAZE 220	5%	1/10W			
R317	1-216-033-00	METAL GLAZE 220	5%	1/10W			
R318	1-216-081-00	METAL GLAZE 22K	5%	1/10W		MISCELLANEOUS	
R319	1-216-097-91	METAL GLAZE 100K	5%	1/10W			
R320	1-216-115-00	METAL GLAZE 560K	5%	1/10W			
R322	1-216-022-00	METAL GLAZE 75	5%	1/10W			
R323	1-216-049-91	METAL GLAZE 1K	5%	1/10W			
R324	1-216-049-91	METAL GLAZE 1K	5%	1/10W			
R325	1-216-089-91	METAL GLAZE 47K	5%	1/10W			
R326	1-216-063-00	METAL GLAZE 3.9K	5%	1/10W			
R327	1-216-063-00	METAL GLAZE 3.9K	5%	1/10W			
R328	1-216-063-00	METAL GLAZE 3.9K	5%	1/10W			
R333	1-216-059-00	METAL GLAZE 2.7K	5%	1/10W			
R334	1-216-033-00	METAL GLAZE 220	5%	1/10W			
R338	1-216-081-00	METAL GLAZE 22K	5%	1/10W			
R339	1-216-057-00	METAL GLAZE 2.2K	5%	1/10W			
R340	1-216-065-00	METAL GLAZE 4.7M	5%	1/10W			
R341	1-216-057-00	METAL GLAZE 2.2K	5%	1/10W			
R347	1-216-041-00	METAL GLAZE 470	5%	1/10W		ACCESSORIES AND PACKING MATERIALS	
R348	1-216-073-00	METAL GLAZE 10K	5%	1/10W (21V4B)			
R349	1-216-101-00	METAL GLAZE 150K	5%	1/10W (21V4B)			
R350	1-216-033-00	METAL GLAZE 220	5%	1/10W (21V4B)			
R351	1-216-292-11	METAL GLAZE 8.2M	5%	1/8W			
R352	1-216-093-00	METAL GLAZE 68K	5%	1/10W			
R354	1-216-025-91	METAL GLAZE 100	5%	1/10W			
R388	1-216-043-91	METAL GLAZE 560K	5%	1/10W (21V4B/D/E/U)			
R389	1-216-295-91	CONDUCTOR, CHIP (21V4A)					
R390	1-216-081-00	METAL GLAZE 22K	5%	1/10W (21V4B/D/E/U)			
R394	1-216-089-00	METAL GLAZE 47K	5%	1/10W		REMOTE COMMANDER	
R396	1-216-033-00	METAL GLAZE 220	5%	1/10W			
R397	1-216-047-91	METAL GLAZE 820	5%	1/10W			
R398	1-216-041-00	METAL GLAZE 470	5%	1/10W			
R399	1-216-025-91	METAL GLAZE 100	5%	1/10W			
R501	1-216-089-91	METAL GLAZE 47K	5%	1/10W			
R502	1-216-089-91	METAL GLAZE 47K	5%	1/10W			
R503	1-216-049-91	METAL GLAZE 1K	5%	1/10W			
R504	1-216-049-91	METAL GLAZE 1K	5%	1/10W			
R505	1-216-049-91	METAL GLAZE 1K	5%	1/10W			
R506	1-216-033-00	METAL GLAZE 220	5%	1/10W			
R507	1-216-025-91	METAL GLAZE 100	5%	1/10W			
R508	1-216-025-91	METAL GLAZE 100	5%	1/10W			
R509	1-216-077-00	METAL GLAZE 15K	5%	1/10W			
R512	1-216-061-00	METAL GLAZE 4.7K	5%	1/10W			
R513	1-216-043-91	METAL GLAZE 560	5%	1/10W			
R514	1-216-061-00	METAL GLAZE 4.7K	5%	1/10W			
R515	1-216-043-91	METAL GLAZE 560	5%	1/10W			
R516	1-216-061-00	METAL GLAZE 4.7K	5%	1/10W			
R517	1-216-043-91	METAL GLAZE 560	5%	1/10W			
R518	1-216-081-00	METAL GLAZE 22K	5%	1/10W			
R519	1-216-089-91	METAL GLAZE 47K	5%	1/10W			
R520	1-216-089-91	METAL GLAZE 47K	5%	1/10W			
R521	1-216-089-91	METAL GLAZE 47K	5%	1/10W			
R555	1-216-081-00	METAL GLAZE 22K	5%	1/10W			
R801	1-216-081-00	METAL GLAZE 1K	5%	1/10W			

VIDEO BLOCK
(ma)

REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK
* A-1306-533-A	MA BOARD, COMPLETE	*****		C051	1-163-113-00	CERAMIC CHIP 68PF	5% 50V (21V4B)
		*****	(KV-21V4A/D/E/U)	C052	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V (21V4B)
* A-1306-535-A	MA BOARD, COMPLETE (KV-21V4B)	*****		C053	1-163-113-00	CERAMIC CHIP 68PF	5% 50V (21V4B)
* 3-960-273-01	SPACER, TOP END			C054	1-126-205-11	ELECT	47MF 6.3V (21V4B)
* 3-960-274-01	SPACER, LED			C055	1-126-205-11	ELECT	47MF 6.3V (21V4B)
		<CAPACITOR>		C056	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V (21V4B)
C001	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V (21V4B)	C057	1-128-006-11	ELECT CHIP	4.7MF 25V (21V4B)
C002	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V (21V4B)	C058	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V (21V4B)
C003	1-163-037-11	CERAMIC CHIP 0.022MF	10% 50V (21V4B)	C060	1-163-016-00	CERAMIC CHIP 0.0039MF	10% 50V (21V4B)
C004	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V (21V4B)	C101	1-163-257-11	CERAMIC CHIP 180PF	5% 50V
C006	1-163-243-11	CERAMIC CHIP 47PF	5% 50V (21V4B)	C102	1-163-113-00	CERAMIC CHIP 68PF	5% 50V
				C104	1-163-235-11	CERAMIC CHIP 22PF	5% 50V
				C109	1-126-205-11	ELECT	47MF 6.3V
C007	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V (21V4B)	C110	1-126-205-11	ELECT	47MF 6.3V
C008	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V (21V4B)	C111	1-128-004-11	ELECT CHIP	10MF 16V
C009	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V (21V4B)	C112	1-126-205-11	ELECT	47MF 6.3V
C010	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V (21V4B)	C113	1-126-205-11	ELECT	47MF 6.3V
C011	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V (21V4B)	C115	1-126-205-11	ELECT	47MF 6.3V
				C116	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
				C118	1-164-182-11	CERAMIC CHIP 0.0033MF	10% 50V (21V4B)
C012	1-163-251-11	CERAMIC CHIP 100PF	5% 50V (21V4B)	C123	1-126-204-11	ELECT	47MF 16V
C013	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V (21V4B)	C124	1-126-397-11	ELECT	33MF 25V
				C125	1-126-204-11	ELECT	47MF 16V
C014	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V (21V4B)	C126	1-126-204-11	ELECT	47MF 16V
C015	1-163-113-00	CERAMIC CHIP 68PF	5% 50V (21V4B)	C127	1-126-397-11	ELECT	33MF 25V
				C131	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
C016	1-126-205-11	ELECT	47MF 6.3V (21V4B)	C201	1-126-205-11	ELECT	47MF 6.3V
				C202	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
C017	1-128-004-11	ELECT CHIP	10MF 16V (21V4B)	C203	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
C018	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V (21V4B)	C205	1-163-099-00	CERAMIC CHIP 18PF	5% 50V
				C206	1-163-113-00	CERAMIC CHIP 68PF	5% 50V
C019	1-163-809-11	CERAMIC CHIP 0.047MF	10% 25V (21V4B)	C251	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C020	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V (21V4B)	C252	1-163-231-11	CERAMIC CHIP 15PF	5% 50V
				C253	1-163-231-11	CERAMIC CHIP 15PF	5% 50V
C021	1-163-113-00	CERAMIC CHIP 68PF	5% 50V (21V4B)	C254	1-126-205-11	ELECT	47MF 6.3V
				C255	1-126-206-11	ELECT	100MF 6.3V
C022	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V (21V4B)	C256	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C023	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V (21V4B)	C301	1-126-205-11	ELECT	47MF 6.3V (21V4B)
C024	1-163-251-11	CERAMIC CHIP 100PF	5% 50V (21V4B)	C302	1-163-263-11	CERAMIC CHIP 330PF	5% 50V (21V4B)
C025	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V (21V4B)	C303	1-163-037-11	CERAMIC CHIP 0.022MF	10% 50V (21V4B)
C026	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V (21V4B)	C305	1-126-206-11	ELECT	100MF 6.3V (21V4B)
				C306	1-128-004-11	ELECT CHIP	10MF 16V
C027	1-163-241-11	CERAMIC CHIP 39PF	5% 50V (21V4B)	C307	1-163-251-11	CERAMIC CHIP 100PF	5% 50V
C028	1-126-205-11	ELECT	47MF 6.3V (21V4B)	C308	1-163-251-11	CERAMIC CHIP 100PF	5% 50V
				C355	1-126-395-11	ELECT	22MF 16V
C029	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V (21V4B)	C356	1-126-395-11	ELECT	22MF 16V
C030	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V (21V4B)	C357	1-128-011-11	ELECT CHIP	0.33MF 20% 50V
C031	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V (21V4B)	C358	1-128-004-11	ELECT CHIP	10MF 16V
				C359	1-163-141-00	CERAMIC CHIP 0.001MF	5% 50V
C032	1-163-809-11	CERAMIC CHIP 0.047MF	10% 25V (21V4B)	C360	1-163-141-00	CERAMIC CHIP 0.001MF	5% 50V
C033	1-128-453-21	ELECT CHIP	47MF 6.3V (21V4B)	C361	1-163-010-11	CERAMIC CHIP 0.0012MF	10% 50V
				C362	1-163-014-00	CERAMIC CHIP 0.0027MF	10% 50V
				C363	1-128-008-11	ELECT CHIP	3.3MF 35V
				C364	1-128-006-11	ELECT CHIP	4.7MF 25V
				C365	1-104-551-11	FILM CHIP	0.01MF 16V
				C366	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V

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REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK
C367	1-128-013-11	ELECT CHIP 1MF	20% 50V	C662	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
C369	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	C663	1-107-682-11	CERAMIC CHIP 1MF	10% 16V
C402	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	C664	1-107-682-11	CERAMIC CHIP 1MF	10% 16V
C403	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	C665	1-163-139-00	CERAMIC CHIP 820PF	5% 50V
C404	1-163-037-11	CERAMIC CHIP 0.022MF	10% 50V	C667	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
C405	1-163-037-11	CERAMIC CHIP 0.022MF	10% 50V	C668	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C406	1-128-004-11	ELECT CHIP 10MF	20% 16V	C669	1-126-217-11	ELECT 15MF	20% 10V
C407	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	C671	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
C408	1-126-205-11	ELECT 47MF	20% 6.3V	C672	1-163-809-11	CERAMIC CHIP 0.047MF	10% 25V
C410	1-126-395-11	ELECT 22MF	20% 16V	C673	1-107-682-11	CERAMIC CHIP 1MF	10% 16V
C411	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	C674	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C412	1-104-556-11	FILM CHIP 0.027MF	5% 16V	C676	1-128-004-11	ELECT CHIP 10MF	20% 16V
C413	1-104-557-11	FILM CHIP 0.033MF	5% 16V	C677	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
C415	1-128-057-11	ELECT 330MF	20% 6.3V	C678	1-165-321-11	CERAMIC CHIP 0.68MF	10% 16V
C416	1-126-205-11	ELECT 47MF	20% 6.3V	C679	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
C417	1-126-205-11	ELECT 47MF	20% 6.3V	C680	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
C418	1-163-809-11	CERAMIC CHIP 0.047MF	10% 25V	C681	1-107-682-11	CERAMIC CHIP 1MF	10% 16V
C419	1-164-344-11	CERAMIC CHIP 0.068MF	10% 25V	C682	1-107-682-11	CERAMIC CHIP 1MF	10% 16V
C420	1-126-206-11	ELECT 100MF	20% 6.3V	C683	1-164-161-11	CERAMIC CHIP 0.0022MF	10% 50V
C421	1-126-395-11	ELECT 22MF	20% 16V	C684	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C422	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V	C686	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
C423	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V	C688	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
C425	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	C689	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C426	1-128-006-11	ELECT CHIP 4.7MF	20% 25V	C690	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C427	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	C691	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C429	1-128-006-11	ELECT CHIP 4.7MF	20% 25V	C692	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
C430	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	C693	1-163-251-11	CERAMIC CHIP 100PF	5% 50V
C431	1-126-205-11	ELECT 47MF	20% 6.3V	C694	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C432	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	C695	1-163-809-11	CERAMIC CHIP 0.047MF	10% 25V
C433	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	C696	1-163-127-00	CERAMIC CHIP 270PF	5% 50V
C434	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	C697	1-163-239-11	CERAMIC CHIP 33PF	5% 50V
C435	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V	C699	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
C436	1-163-809-11	CERAMIC CHIP 0.047MF	10% 25V	C700	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
C437	1-163-809-11	CERAMIC CHIP 0.047MF	10% 25V	C701	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C438	1-163-809-11	CERAMIC CHIP 0.047MF	10% 25V	C702	1-163-222-11	CERAMIC CHIP 5PF	0.25PF 50V
C439	1-163-809-11	CERAMIC CHIP 0.047MF	10% 25V	C721	1-164-161-11	CERAMIC CHIP 0.22MF	10% 25V
C440	1-128-004-11	ELECT CHIP 10MF	20% 16V	C722	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C441	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V	C723	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C442	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V	C801	1-163-037-11	CERAMIC CHIP 0.022MF	10% 50V
C443	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V	C802	1-163-037-11	CERAMIC CHIP 0.022MF	10% 50V
C486	1-126-204-11	ELECT 47MF	20% 16V	C806	1-163-251-11	CERAMIC CHIP 100PF	5% 50V
C488	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V	C807	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C489	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V	C808	1-126-206-11	ELECT 100MF	20% 6.3V
C490	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	C809	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C491	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	C810	1-126-206-11	ELECT 100MF	20% 6.3V
C507	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	C811	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
C511	1-163-809-11	CERAMIC CHIP 0.047MF	10% 25V	C813	1-164-336-11	CERAMIC CHIP 0.33MF	25V
C512	1-128-057-11	ELECT 330MF	20% 6.3V	C814	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C515	1-126-205-11	ELECT 47MF	20% 6.3V	C815	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C516	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	C817	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C517	1-163-251-11	CERAMIC CHIP 100PF	5% 50V	C818	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
C518	1-163-251-11	CERAMIC CHIP 100PF	5% 50V	C822	1-163-263-11	CERAMIC CHIP 330PF	5% 50V
C520	1-163-809-11	CERAMIC CHIP 0.047MF	10% 25V	C826	1-126-397-11	ELECT 33MF	20% 25V
C601	1-137-431-11	FILM 560PF	5% 50V	C827	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C602	1-163-011-11	CERAMIC CHIP 0.0015MF	10% 50V	C829	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
C603	1-104-696-11	FILM 0.015MF	5% 100V	C830	1-163-241-11	CERAMIC CHIP 39PF	5% 50V
C604	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	C836	1-128-013-11	ELECT CHIP 1MF	20% 50V
C605	1-126-204-11	ELECT 47MF	20% 16V	C838	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
C651	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	C839	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
C653	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	C840	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
C654	1-163-037-11	CERAMIC CHIP 0.022MF	10% 50V	C901	1-163-243-11	CERAMIC CHIP 47PF	5% 50V
C655	1-163-809-11	CERAMIC CHIP 0.047MF	10% 25V	C902	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
C656	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	C903	1-163-239-11	CERAMIC CHIP 33PF	5% 50V
C657	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	C905	1-163-113-00	CERAMIC CHIP 68PF	5% 50V
C658	1-107-682-11	CERAMIC CHIP 1MF	10% 16V	C906	1-163-243-11	CERAMIC CHIP 47PF	5% 50V
C659	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	C907	1-163-239-11	CERAMIC CHIP 33PF	5% 50V
C660	1-128-004-11	ELECT CHIP 10MF	20% 16V	C921	1-126-205-11	ELECT 47MF	20% 6.3V
C661	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	C922	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V

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The components identified by shading and mark \triangle are critical for safety.
Replace only with part number specified.

Les composants identifiés par une trame et une marque \triangle sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK				
<FILTER>											
CF001	1-527-943-00	FILTER, CERAMIC (21V4B)		L006	1-236-584-11	BPF (21V4B)					
<CONNECTOR>											
CN110	1-564-511-11	PLUG, CONNECTOR 8P		L007	1-410-658-31	INDUCTOR CHIP 220UH (21V4B)					
CN301	1-506-467-11	PIN, CONNECTOR 2P		L008	1-412-958-21	INDUCTOR 39UH (21V4B)					
CN302	* 1-564-005-11	PIN, CONNECTOR 6P		L009	1-412-959-11	INDUCTOR 47UH (21V4B)					
CN303	1-506-467-11	PIN, CONNECTOR 2P		L010	1-412-956-21	INDUCTOR 27UH (21V4B)					
CN410	* 1-766-716-11	CONNECTOR, BOARD TO BOARD 3P		L051	1-412-064-11	INDUCTOR CHIP 100UH (21V4B)					
CN412	* 1-564-004-11	PIN, CONNECTOR 5P		L103	1-412-064-11	INDUCTOR CHIP 100UH					
CN413	* 1-766-538-11	CONNECTOR, BOARD TO BOARD 8P		L104	1-412-064-11	INDUCTOR CHIP 100UH					
CN415	* 1-766-537-11	CONNECTOR (HMD) 5P		L105	1-412-064-11	INDUCTOR CHIP 100UH					
CN501	* 1-564-509-11	PLUG, CONNECTOR 6P		L106	1-412-064-11	INDUCTOR CHIP 100UH					
CN701	1-564-510-11	PLUG, CONNECTOR 7P		L108	1-412-958-21	INDUCTOR 39UH (21V4B)					
CN801	1-563-585-11	CONNECTOR, FLEXIBLE 8P		L201	1-410-656-11	INDUCTOR CHIP 150UH					
CN802	* 1-560-892-00	PIN, CONNECTOR 4P		L202	1-412-064-11	INDUCTOR CHIP 100UH					
<DIODE>											
D001	8-719-914-43	DIODE DAN202K (21V4B)		L203	1-412-953-11	INDUCTOR 15UH					
D103	8-719-988-62	DIODE 1SS355		L251	1-412-058-11	INDUCTOR CHIP 10UH					
D122	8-719-420-90	DIODE MA8051-M		L252	1-412-064-11	INDUCTOR CHIP 100UH					
D123	8-719-988-62	DIODE 1SS355		L253	1-412-058-11	INDUCTOR CHIP 10UH					
D304	8-719-988-62	DIODE 1SS355		L301	1-412-064-11	INDUCTOR CHIP 100UH (21V4B)					
D401	8-719-988-62	DIODE 1SS355		L302	1-412-961-11	INDUCTOR 68UH (21V4B)					
D402	8-719-420-90	DIODE MA8051-M		L304	1-412-058-11	INDUCTOR CHIP 10UH					
D405	8-719-017-09	DIODE 02DZ6.2-TPH3		L305	1-412-957-11	INDUCTOR 33UH					
D406	8-719-017-09	DIODE 02DZ6.2-TPH3		L401	1-414-080-11	INDUCTOR 22UH					
D407	8-719-048-26	DIODE GL528V1		L403	1-412-064-11	INDUCTOR CHIP 100UH					
D408	8-719-017-03	DIODE 02DZ4.7-TPH3		L505	1-412-054-21	INDUCTOR CHIP 2.2UH					
D410	8-719-422-97	DIODE MA8091-M		L601	1-410-687-11	INDUCTOR 1.2mH					
D501	8-719-988-62	DIODE 1SS355		L651	1-412-958-21	INDUCTOR 39UH					
D502	8-719-053-40	DIODE SC016.2-TE12RA		L652	1-412-959-11	INDUCTOR 47UH					
D503	8-719-053-40	DIODE SC016.2-TE12RA		L653	1-412-958-21	INDUCTOR 39UH					
D651	8-719-988-62	DIODE 1SS355		L654	1-412-943-11	INDUCTOR 2.2UH					
D653	8-719-988-62	DIODE 1SS355		L801	1-410-658-31	INDUCTOR CHIP 220UH					
D655	8-719-988-62	DIODE 1SS355		L803	1-412-064-11	INDUCTOR CHIP 100UH					
D656	8-719-914-43	DIODE DAN202K		L804	1-412-064-11	INDUCTOR CHIP 100UH					
D657	8-719-988-62	DIODE 1SS355		L810	1-410-657-21	INDUCTOR CHIP 180UH					
D802	8-719-988-62	DIODE 1SS355		L812	1-412-064-11	INDUCTOR CHIP 100UH					
D804	8-719-988-62	DIODE 1SS355		L901	1-412-953-11	INDUCTOR 15UH					
<PHOTO COUPLER>											
PH401	8-749-010-19	PHOTO INTERRUPTER GP3S113		PH402	8-749-010-20	PHOTO INTERRUPTER GP3S114					
<IC LINK>											
IC001	8-759-501-64	IC BA7107F (21V4B)		PS121	\triangle 1-533-282-21	LINK, IC					
IC002	8-759-100-93	IC uPC393G2 (21V4B)		PS201	\triangle 1-576-124-21	LINK, IC					
IC051	8-759-996-63	IC BA7025L (21V4B)		PS301	\triangle 1-576-122-21	LINK, IC					
IC101	8-759-189-48	IC PQ12RE11		PS401	\triangle 1-576-124-21	LINK, IC					
IC102	8-759-251-39	IC PQ12TZ1U		PS402	\triangle 1-576-122-21	LINK, IC					
IC301	8-759-268-02	IC BA7796FS-E2		<TRANSISTOR>							
IC403	8-759-702-02	IC NJM062M		Q001	8-729-901-47	TRANSISTOR DTA143EK (21V4B)					
IC406	8-759-246-14	IC TA8823N		Q002	8-729-027-59	TRANSISTOR DTC144EKA-T146 (21V4B)					
IC407	8-759-100-95	IC uPC324G2		Q003	8-729-271-21	TRANSISTOR 2SC2712-Y (21V4B)					
IC410	8-759-988-58	IC BA6209N		Q004	8-729-271-21	TRANSISTOR 2SC2712-Y (21V4B)					
IC501	8-752-852-40	IC CXP87248A-018Q		Q005	8-729-027-59	TRANSISTOR DTC144EKA-T146 (21V4B)					
IC505	8-759-097-80	IC HD49783FP		Q006	8-729-271-21	TRANSISTOR 2SC2712-Y (21V4B)					
IC651	8-759-349-60	IC LA7438AM-MPB		Q007	8-729-216-21	TRANSISTOR 2SA1162-Y (21V4B)					
IC652	8-752-373-18	IC CXL1511M-T6		Q008	8-729-271-21	TRANSISTOR 2SC2712-Y (21V4B)					
IC801	8-759-267-77	IC HA118291ANT		Q009	8-729-027-38	TRANSISTOR DTA144EKA-T146 (21V4B)					
<COIL>											
L001	1-236-585-11	BPF (21V4B)		Q010	8-729-027-59	TRANSISTOR DTC144EKA-T146 (21V4B)					
L002	1-236-585-11	BPF (21V4B)		Q011	8-729-027-59	TRANSISTOR DTC144EKA-T146 (21V4B)					
L003	1-236-582-11	BPF (21V4B)		Q012	8-729-027-59	TRANSISTOR DTC144EKA-T146 (21V4B)					
L004	1-236-920-11	FILTER, LOW PASS (21V4B)		Q051	8-729-271-21	TRANSISTOR 2SC2712-Y (21V4B)					
L005	1-236-920-11	FILTER, LOW PASS (21V4B)		Q052	8-729-027-59	TRANSISTOR DTC144EKA-T146 (21V4B)					

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REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK
Q108	8-729-027-38	TRANSISTOR DTA144EKA-T146		R010	1-216-689-11	METAL GLAZE 39K	5% 1/10W (21V4B)
Q109	8-729-901-47	TRANSISTOR DTA143EK (21V4B)		R011	1-216-037-00	METAL GLAZE 330	5% 1/10W (21V4B)
Q110	8-729-027-59	TRANSISTOR DTC144EKA-T146		R012	1-216-017-91	METAL GLAZE 47	5% 1/10W (21V4B)
Q112	8-729-900-53	TRANSISTOR DTC144EK (21V4B)		R013	1-216-053-00	METAL GLAZE 1.5K	5% 1/10W (21V4B)
Q123	8-729-920-85	TRANSISTOR 2SD1664-QR		R014	1-216-041-00	METAL GLAZE 470	5% 1/10W (21V4B)
Q125	8-729-025-92	PHOTO TRANSISTOR PT380F		R015	1-216-075-00	METAL GLAZE 12K	5% 1/10W (21V4B)
Q126	8-729-025-92	PHOTO TRANSISTOR PT380F		R016	1-216-053-00	METAL GLAZE 1.5K	5% 1/10W (21V4B)
Q127	8-729-271-21	TRANSISTOR 2SC2712-Y		R017	1-216-049-91	METAL GLAZE 1K	5% 1/10W (21V4B)
Q201	8-729-271-21	TRANSISTOR 2SC2712-Y		R018	1-216-081-00	METAL GLAZE 22K	5% 1/10W (21V4B)
Q251	8-729-027-38	TRANSISTOR DTA144EKA-T146		R019	1-216-079-00	METAL GLAZE 18K	5% 1/10W (21V4B)
Q301	8-729-027-59	TRANSISTOR DTC144EKA-T146 (21V4B)		R020	1-216-049-91	METAL GLAZE 1K	5% 1/10W (21V4B)
Q302	8-729-027-59	TRANSISTOR DTC144EKA-T146 (21V4B)		R021	1-216-047-91	METAL GLAZE 820	5% 1/10W (21V4B)
Q304	8-729-216-21	TRANSISTOR 2SA1162-Y		R022	1-216-075-00	METAL GLAZE 12K	5% 1/10W (21V4B)
Q305	8-729-271-21	TRANSISTOR 2SC2712-Y		R023	1-216-049-91	METAL GLAZE 1K	5% 1/10W (21V4B)
Q351	8-729-027-59	TRANSISTOR DTC144EKA-T146		R024	1-216-041-00	METAL GLAZE 470	5% 1/10W (21V4B)
Q503	8-729-027-59	TRANSISTOR DTC144EKA-T146		R025	1-216-071-00	METAL GLAZE 8.2K	5% 1/10W (21V4B)
Q505	8-729-216-21	TRANSISTOR 2SA1162-Y		R026	1-216-689-11	METAL GLAZE 39K	5% 1/10W (21V4B)
Q601	8-729-920-85	TRANSISTOR 2SD1664-QR		R027	1-216-049-91	METAL GLAZE 1K	5% 1/10W (21V4B)
Q602	8-729-027-24	TRANSISTOR DTA144EKA-T146		R028	1-216-049-91	METAL GLAZE 1K	5% 1/10W (21V4B)
Q603	8-729-271-21	TRANSISTOR 2SC2712-Y		R029	1-216-049-91	METAL GLAZE 1K	5% 1/10W (21V4B)
Q653	8-729-027-59	TRANSISTOR DTC144EKA-T146		R030	1-216-081-00	METAL GLAZE 22K	5% 1/10W (21V4B)
Q654	8-729-027-59	TRANSISTOR DTC144EKA-T146		R031	1-216-081-00	METAL GLAZE 22K	5% 1/10W (21V4B)
Q655	8-729-271-21	TRANSISTOR 2SC2712-Y		R032	1-216-081-00	METAL GLAZE 22K	5% 1/10W (21V4B)
Q656	8-729-027-23	TRANSISTOR DTC144EKA-T146		R033	1-216-081-00	METAL GLAZE 22K	5% 1/10W (21V4B)
Q657	8-729-216-21	TRANSISTOR 2SA1162-Y		R034	1-216-073-00	METAL GLAZE 10K	5% 1/10W (21V4B)
Q658	8-729-271-21	TRANSISTOR 2SC2712-Y		R035	1-216-049-91	METAL GLAZE 1K	5% 1/10W (21V4B)
Q659	8-729-901-47	TRANSISTOR DTA143EK		R036	1-216-083-00	METAL GLAZE 27K	5% 1/10W (21V4B)
Q664	8-729-271-21	TRANSISTOR 2SC2712-Y		R037	1-216-073-00	METAL GLAZE 10K	5% 1/10W (21V4B)
Q665	8-729-027-59	TRANSISTOR DTC144EKA-T146		R038	1-216-045-00	METAL GLAZE 680	5% 1/10W (21V4B)
Q667	8-729-027-59	TRANSISTOR DTC144EKA-T146		R039	1-216-037-00	METAL GLAZE 330	5% 1/10W (21V4B)
Q668	8-729-271-21	TRANSISTOR 2SC2712-Y		R040	1-216-033-00	METAL GLAZE 220	5% 1/10W (21V4B)
Q724	8-729-271-21	TRANSISTOR 2SC2712-Y		R051	1-216-081-00	METAL GLAZE 22K	5% 1/10W (21V4B)
Q725	8-729-271-21	TRANSISTOR 2SC2712-Y		R052	1-216-081-00	METAL GLAZE 22K	5% 1/10W (21V4B)
Q851	8-729-027-59	TRANSISTOR DTC144EKA-T146		R053	1-216-057-00	METAL GLAZE 2.2K	5% 1/10W (21V4B)
Q852	8-729-027-59	TRANSISTOR DTC144EKA-T146		R054	1-216-049-91	METAL GLAZE 1K	5% 1/10W (21V4B)
Q853	8-729-271-21	TRANSISTOR 2SC2712-Y		R055	1-216-073-00	METAL GLAZE 10K	5% 1/10W (21V4B)
Q854	8-729-271-21	TRANSISTOR 2SC2712-Y		R056	1-216-065-00	METAL GLAZE 4.7K	5% 1/10W (21V4B)
Q855	8-729-271-21	TRANSISTOR 2SC2712-Y					
Q861	8-729-216-21	TRANSISTOR 2SA1162-Y					
Q862	8-729-271-21	TRANSISTOR 2SC2712-Y					
Q901	8-729-216-21	TRANSISTOR 2SA1162-Y					
Q904	8-729-271-21	TRANSISTOR 2SC2712-Y					
Q905	8-729-027-59	TRANSISTOR DTC144EKA-T146					
Q906	8-729-271-21	TRANSISTOR 2SC2712-Y					
Q907	8-729-027-59	TRANSISTOR DTC144EKA-T146					
<RESISTOR>							
R001	1-216-049-91	METAL GLAZE 1K	5% 1/10W (21V4B)	R039	1-216-037-00	METAL GLAZE 330	5% 1/10W (21V4B)
R002	1-216-049-91	METAL GLAZE 1K	5% 1/10W (21V4B)	R040	1-216-033-00	METAL GLAZE 220	5% 1/10W (21V4B)
R003	1-216-113-00	METAL GLAZE 470K	5% 1/10W (21V4B)	R051	1-216-081-00	METAL GLAZE 22K	5% 1/10W (21V4B)
R004	1-216-097-91	METAL GLAZE 100K	5% 1/10W (21V4B)	R052	1-216-081-00	METAL GLAZE 22K	5% 1/10W (21V4B)
R005	1-216-049-91	METAL GLAZE 1K	5% 1/10W (21V4B)	R053	1-216-057-00	METAL GLAZE 2.2K	5% 1/10W (21V4B)
R006	1-216-049-91	METAL GLAZE 1K	5% 1/10W (21V4B)	R054	1-216-049-91	METAL GLAZE 1K	5% 1/10W (21V4B)
R007	1-216-093-00	METAL GLAZE 68K	5% 1/10W (21V4B)	R055	1-216-073-00	METAL GLAZE 10K	5% 1/10W (21V4B)
R008	1-216-047-91	METAL GLAZE 820	5% 1/10W (21V4B)	R056	1-216-065-00	METAL GLAZE 4.7K	5% 1/10W (21V4B)
R009	1-216-073-00	METAL GLAZE 10K	5% 1/10W (21V4B)				

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REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK	
R057	1-216-109-00	METAL GLAZE 330K	5%	1/10W (21V4B)	R403	1-216-059-00	METAL GLAZE 2.7K	5% 1/10W
R058	1-216-073-00	METAL GLAZE 10K	5%	1/10W	R404	1-216-025-91	METAL GLAZE 100	5% 1/10W
R101	1-216-049-91	METAL GLAZE 1K	5%	1/10W	R405	1-216-065-00	METAL GLAZE 4.7K	5% 1/10W
R102	1-216-065-00	METAL GLAZE 4.7K	5%	1/10W	R406	1-216-089-91	METAL GLAZE 47K	5% 1/10W
R103	1-216-295-91	CONDUCTOR, CHIP			R407	1-216-057-00	METAL GLAZE 2.2K	5% 1/10W
R110	1-216-049-91	METAL GLAZE 1K	5%	1/10W	R408	1-216-057-00	METAL GLAZE 2.2K	5% 1/10W
R122	1-216-073-00	METAL GLAZE 10K	5%	1/10W	R409	1-216-089-91	METAL GLAZE 47K	5% 1/10W
R123	1-216-033-00	METAL GLAZE 220	5%	1/10W	R410	1-216-057-00	METAL GLAZE 2.2K	5% 1/10W
R124	1-216-033-00	METAL GLAZE 220	5%	1/10W	R411	1-216-093-00	METAL GLAZE 68K	5% 1/10W
R125	1-216-033-00	METAL GLAZE 220	5%	1/10W	R412	1-216-075-00	METAL GLAZE 12K	5% 1/10W
R127	1-216-041-00	METAL GLAZE 470	5%	1/10W	R413	1-216-083-00	METAL GLAZE 27K	5% 1/10W
R129	1-216-099-00	METAL GLAZE 120K	5%	1/10W	R414	1-216-057-00	METAL GLAZE 2.2K	5% 1/10W
R132	1-216-295-91	CONDUCTOR, CHIP			R415	1-216-057-00	METAL GLAZE 2.2K	5% 1/10W
R134	1-216-025-91	METAL GLAZE 100	5%	1/10W	R416	1-216-103-00	METAL GLAZE 180K	5% 1/10W
R135	1-216-033-00	METAL GLAZE 220	5%	1/10W	R417	1-216-079-00	METAL GLAZE 18K	5% 1/10W
R137	1-218-262-11	METAL GLAZE 2.7	10%	1/2W	R419	1-216-689-11	METAL GLAZE 39K	5% 1/10W
R138	1-218-262-11	METAL GLAZE 2.7	10%	1/2W	R420	1-216-049-91	METAL GLAZE 1K	5% 1/10W
R139	1-218-262-11	METAL GLAZE 2.7	10%	1/2W	R421	1-216-057-00	METAL GLAZE 2.2K	5% 1/10W
R140	1-218-262-11	METAL GLAZE 2.7	10%	1/2W	R422	1-216-057-00	METAL GLAZE 2.2K	5% 1/10W
R203	1-216-083-00	METAL GLAZE 27K	5%	1/10W	R423	1-216-609-11	METAL GLAZE 18	5% 1/10W
R204	1-216-049-91	METAL GLAZE 1K	5%	1/10W	R431	1-216-609-11	METAL GLAZE 18	5% 1/10W
R205	1-216-049-91	METAL GLAZE 1K	5%	1/10W	R432	1-216-057-00	METAL GLAZE 2.2K	5% 1/10W
R206	1-216-047-91	METAL GLAZE 820	5%	1/10W	R433	1-216-069-00	METAL GLAZE 6.8K	5% 1/10W
R251	1-216-017-91	METAL GLAZE 47	5%	1/10W	R435	1-216-093-00	METAL GLAZE 68K	5% 1/10W
R252	1-216-073-00	METAL GLAZE 10K	5%	1/10W	R436	1-216-119-00	METAL GLAZE 820K	5% 1/10W
R253	1-216-051-00	METAL GLAZE 1.2K	5%	1/10W (21V4B)	R437	1-216-097-91	METAL GLAZE 100K	5% 1/10W
R253	1-216-055-00	METAL GLAZE 1.8K	5%	1/10W (21V4A/D/E/U)	R438	1-216-097-91	METAL GLAZE 100K	5% 1/10W
R254	1-216-055-00	METAL GLAZE 1.8K	5%	1/10W (21V4B)	R439	1-216-085-00	METAL GLAZE 33K	5% 1/10W
R254	1-216-057-00	METAL GLAZE 2.2K	5%	1/10W (21V4A/D/E/U)	R440	1-216-065-00	METAL GLAZE 4.7K	5% 1/10W
R254	1-216-057-00	METAL GLAZE 2.2K	5%	1/10W (21V4A/D/E/U)	R441	1-216-037-00	METAL GLAZE 330	5% 1/10W
R254	1-216-057-00	METAL GLAZE 2.2K	5%	1/10W (21V4A/D/E/U)	R443	1-216-065-00	METAL GLAZE 4.7K	5% 1/10W
R255	1-216-085-00	METAL GLAZE 33K	5%	1/10W	R445	1-216-089-91	METAL GLAZE 47K	5% 1/10W
R256	1-216-095-00	METAL GLAZE 82K	5%	1/10W	R446	1-216-113-00	METAL GLAZE 470K	5% 1/10W
R301	1-216-073-00	METAL GLAZE 10K	5%	1/10W (21V4B)	R447	1-216-609-11	METAL GLAZE 18	5% 1/10W
R302	1-216-041-00	METAL GLAZE 470	5%	1/10W (21V4B)	R448	1-216-609-11	METAL GLAZE 18	5% 1/10W
R302	1-216-295-91	CONDUCTOR, CHIP (21V4A/D/E/U)			R449	1-216-111-91	METAL GLAZE 390K	5% 1/10W
R303	1-216-073-00	METAL GLAZE 10K	5%	1/10W	R450	1-216-089-91	METAL GLAZE 47K	5% 1/10W
R332	1-216-089-91	METAL GLAZE 47K	5%	1/10W	R451	1-216-111-91	METAL GLAZE 390K	5% 1/10W
R333	1-216-073-00	METAL GLAZE 10K	5%	1/10W	R453	1-216-089-91	METAL GLAZE 47K	5% 1/10W
R334	1-216-073-00	METAL GLAZE 10K	5%	1/10W	R455	1-216-089-91	METAL GLAZE 47K	5% 1/10W
R335	1-216-085-00	METAL GLAZE 33K	5%	1/10W	R456	1-216-055-00	METAL GLAZE 1.8K	5% 1/10W
R336	1-216-057-00	METAL GLAZE 2.2K	5%	1/10W	R457	1-216-055-00	METAL GLAZE 1.8K	5% 1/10W
R337	1-216-049-91	METAL GLAZE 1K	5%	1/10W	R458	1-216-089-91	METAL GLAZE 47K	5% 1/10W
R353	1-216-049-91	METAL GLAZE 1K	5%	1/10W (21V4B)	R459	1-216-089-91	METAL GLAZE 47K	5% 1/10W
R363	1-216-001-00	METAL GLAZE 10	5%	1/10W	R460	1-216-089-91	METAL GLAZE 47K	5% 1/10W
R371	1-216-065-00	METAL GLAZE 4.7K	5%	1/10W	R461	1-216-089-91	METAL GLAZE 47K	5% 1/10W
R372	1-216-081-00	METAL GLAZE 22K	5%	1/10W	R465	1-216-055-00	METAL GLAZE 1.8K	5% 1/10W
R373	1-216-083-00	METAL GLAZE 27K	5%	1/10W	R466	1-216-055-00	METAL GLAZE 1.8K	5% 1/10W
R374	1-216-077-00	METAL GLAZE 15K	5%	1/10W	R470	1-216-073-00	METAL GLAZE 10K	5% 1/10W
R375	1-216-099-00	METAL GLAZE 120K	5%	1/10W	R471	1-216-073-00	METAL GLAZE 10K	5% 1/10W
R376	1-216-089-91	METAL GLAZE 47K	5%	1/10W	R481	1-216-295-91	CONDUCTOR, CHIP	
R378	1-216-041-00	METAL GLAZE 470	5%	1/10W	R482	1-216-295-91	CONDUCTOR, CHIP	
R379	1-216-109-00	METAL GLAZE 330K	5%	1/10W	R483	1-216-295-91	CONDUCTOR, CHIP	
R380	1-216-069-00	METAL GLAZE 6.8K	5%	1/10W	R499	1-216-057-00	METAL GLAZE 2.2K	5% 1/10W
R381	1-216-129-00	METAL GLAZE 2.2M	5%	1/10W	R501	1-216-045-00	METAL GLAZE 680	5% 1/10W
R384	1-216-093-00	METAL GLAZE 68K	5%	1/10W	R502	1-216-089-91	METAL GLAZE 47K	5% 1/10W
R385	1-216-071-00	METAL GLAZE 8.2K	5%	1/10W	R507	1-216-073-00	METAL GLAZE 10K	5% 1/10W
R387	1-216-304-11	METAL GLAZE 3.3	5%	1/10W	R508	1-216-025-91	METAL GLAZE 100	5% 1/10W
R388	1-216-295-91	CONDUCTOR, CHIP			R509	1-216-057-00	METAL GLAZE 2.2K	5% 1/10W
R389	1-216-073-00	METAL GLAZE 10K	5%	1/10W	R510	1-216-073-00	METAL GLAZE 10K	5% 1/10W
R390	1-216-049-91	METAL GLAZE 1K	5%	1/10W	R511	1-216-025-91	METAL GLAZE 100	5% 1/10W
R391	1-216-295-91	CONDUCTOR, CHIP			R512	1-216-053-00	METAL GLAZE 1.5K	5% 1/10W
R401	1-216-109-00	METAL GLAZE 330K	5%	1/10W	R513	1-216-025-91	METAL GLAZE 100	5% 1/10W
R402	1-216-109-00	METAL GLAZE 330K	5%	1/10W	R519	1-216-073-00	METAL GLAZE 10K	5% 1/10W
					R521	1-216-073-00	METAL GLAZE 10K	5% 1/10W
					R522	1-216-073-00	METAL GLAZE 10K	5% 1/10W
					R523	1-216-049-91	METAL GLAZE 1K	5% 1/10W

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REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK	
R524	1-216-073-00	METAL GLAZE 10K	5%	1/10W	R721	1-216-081-00	METAL GLAZE 22K	5%
R525	1-216-077-00	METAL GLAZE 15K	5%	1/10W	R722	1-216-295-91	CONDUCTOR, CHIP	1/10W
R526	1-216-063-91	METAL GLAZE 3.9K	5%	1/10W	R723	1-216-295-91	CONDUCTOR, CHIP	1/10W
R527	1-216-065-00	METAL GLAZE 4.7K	5%	1/10W	R724	1-216-057-00	METAL GLAZE 2.2K	5%
					R725	1-216-057-00	METAL GLAZE 2.2K	5%
R528	1-216-069-00	METAL GLAZE 6.8K	5%	1/10W	R726	1-216-065-00	METAL GLAZE 4.7K	5%
R529	1-216-061-00	METAL GLAZE 3.3K	5%	1/10W	R727	1-216-073-00	METAL GLAZE 10K	5%
R530	1-216-061-00	METAL GLAZE 3.3K	5%	1/10W	R728	1-216-073-00	METAL GLAZE 10K	5%
R531	1-216-061-00	METAL GLAZE 3.3K	5%	1/10W	R729	1-216-049-91	METAL GLAZE 1K	5%
R532	1-216-069-00	METAL GLAZE 6.8K	5%	1/10W	R801	1-216-021-00	METAL GLAZE 68	5%
R533	1-216-069-00	METAL GLAZE 6.8K	5%	1/10W	R802	1-216-037-00	METAL GLAZE 330	5%
R534	1-216-069-00	METAL GLAZE 6.8K	5%	1/10W	R805	1-216-001-00	METAL GLAZE 10	5%
R535	1-216-069-00	METAL GLAZE 6.8K	5%	1/10W	R806	1-216-021-00	METAL GLAZE 68	5%
R536	1-216-049-91	METAL GLAZE 1K	5%	1/10W	R811	1-216-037-00	METAL GLAZE 330	5%
R537	1-216-049-91	METAL GLAZE 1K	5%	1/10W	R822	1-216-073-00	METAL GLAZE 10K	5%
R538	1-216-065-00	METAL GLAZE 4.7K	5%	1/10W	R823	1-216-081-00	METAL GLAZE 22K	5%
R539	1-216-049-91	METAL GLAZE 1K	5%	1/10W	R835	1-216-049-91	METAL GLAZE 1K	5%
R540	1-216-057-00	METAL GLAZE 2.2K	5%	1/10W	R836	1-216-057-00	METAL GLAZE 2.2K	5%
R542	1-216-077-00	METAL GLAZE 15K	5%	1/10W	R851	1-216-061-00	METAL GLAZE 3.3K	5%
R545	1-216-295-91	CONDUCTOR, CHIP			R852	1-216-059-00	METAL GLAZE 2.7K	5%
R547	1-216-089-91	METAL GLAZE 47K	5%	1/10W	R853	1-216-079-00	METAL GLAZE 18K	5%
R560	1-216-689-11	METAL GLAZE 39K	5%	1/10W	R856	1-216-025-91	METAL GLAZE 100	5%
R570	1-216-073-00	METAL GLAZE 10K	5%	1/10W	R858	1-216-065-00	METAL GLAZE 4.7K	5%
R571	1-216-049-91	METAL GLAZE 1K	5%	1/10W	R859	1-216-089-91	METAL GLAZE 47K	5%
R572	1-216-049-91	METAL GLAZE 1K	5%	1/10W	R861	1-216-053-00	METAL GLAZE 1.5K	5%
R573	1-216-049-91	METAL GLAZE 1K	5%	1/10W	R862	1-216-061-00	METAL GLAZE 3.3K	5%
R574	1-216-049-91	METAL GLAZE 1K	5%	1/10W	R863	1-216-047-91	METAL GLAZE 820	5%
R575	1-216-049-91	METAL GLAZE 1K	5%	1/10W	R864	1-216-057-00	METAL GLAZE 2.2K	5%
R576	1-216-049-91	METAL GLAZE 1K	5%	1/10W	R865	1-216-049-91	METAL GLAZE 1K	5%
R577	1-216-049-91	METAL GLAZE 1K	5%	1/10W	R866	1-216-075-00	METAL GLAZE 12K	5%
R602	1-216-081-00	METAL GLAZE 22K	5%	1/10W	R883	1-216-025-91	METAL GLAZE 100	5%
R651	1-216-073-00	METAL GLAZE 10K	5%	1/10W	R884	1-216-025-91	METAL GLAZE 100	5%
R652	1-216-073-00	METAL GLAZE 10K	5%	1/10W	R901	1-216-057-00	METAL GLAZE 2.2K	5%
R654	1-216-057-00	METAL GLAZE 2.2K	5%	1/10W	R902	1-216-065-00	METAL GLAZE 4.7K	5%
R656	1-216-057-00	METAL GLAZE 2.2K	5%	1/10W	R903	1-216-061-00	METAL GLAZE 3.3K	5%
R657	1-216-077-00	METAL GLAZE 15K	5%	1/10W	R904	1-216-057-00	METAL GLAZE 2.2K	5%
R660	1-216-049-91	METAL GLAZE 1K	5%	1/10W	R905	1-216-037-00	METAL GLAZE 330	5%
R661	1-216-049-91	METAL GLAZE 1K	5%	1/10W	R906	1-216-047-91	METAL GLAZE 820	5%
R662	1-216-081-00	METAL GLAZE 22K	5%	1/10W	R908	1-216-041-00	METAL GLAZE 470	5%
R663	1-216-057-00	METAL GLAZE 2.2K	5%	1/10W	R909	1-216-049-91	METAL GLAZE 1K	5%
R665	1-216-053-00	METAL GLAZE 1.5K	5%	1/10W	R910	1-216-041-00	METAL GLAZE 470	5%
R666	1-216-073-00	METAL GLAZE 10K	5%	1/10W	R911	1-216-045-00	METAL GLAZE 680	5%
R667	1-216-061-00	METAL GLAZE 3.3K	5%	1/10W	R912	1-216-057-00	METAL GLAZE 2.2K	5%
R668	1-216-037-00	METAL GLAZE 330	5%	1/10W	R913	1-216-037-00	METAL GLAZE 330	5%
R669	1-216-295-91	CONDUCTOR, CHIP			R914	1-216-049-91	METAL GLAZE 1K	5%
R675	1-216-025-91	METAL GLAZE 100	5%	1/10W	R915	1-216-049-91	METAL GLAZE 1K	5%
R677	1-216-071-00	METAL GLAZE 8.2K	5%	1/10W	R916	1-216-073-00	METAL GLAZE 10K	5%
R682	1-216-055-00	METAL GLAZE 1.8K	5%	1/10W	R917	1-216-037-00	METAL GLAZE 330	5%
R683	1-216-057-00	METAL GLAZE 2.2K	5%	1/10W				
R685	1-216-073-00	METAL GLAZE 10K	5%	1/10W				
R686	1-216-073-00	METAL GLAZE 10K	5%	1/10W				<VARIABLE RESISTOR>
R687	1-216-075-00	METAL GLAZE 12K	5%	1/10W				
R688	1-216-095-00	METAL GLAZE 82K	5%	1/10W	RV051	1-241-391-11	RES, ADJ, METAL GLAZE 470 (21V4B)	
R689	1-216-049-91	METAL GLAZE 1K	5%	1/10W	RV301	1-241-396-11	RES, ADJ, METAL GLAZE 22K	
R692	1-216-069-00	METAL GLAZE 6.8K	5%	1/10W	RV502	1-241-397-11	RES, ADJ, METAL GLAZE 47K	
					RV652	1-241-394-11	RES, ADJ, METAL GLAZE 4.7K	
R701	1-216-295-91	CONDUCTOR, CHIP						
R705	1-216-121-91	METAL GLAZE 1M	5%	1/10W				
R707	1-216-073-00	METAL GLAZE 10K	5%	1/10W				<SWITCH>
R708	1-216-295-91	CONDUCTOR, CHIP						
R709	1-216-057-00	METAL GLAZE 2.2K	5%	1/10W	S401	1-570-953-11	SWITCH, PUSH (1 KEY)	
R710	1-216-041-00	METAL GLAZE 470	5%	1/10W				
R711	1-216-079-00	METAL GLAZE 18K	5%	1/10W				<TRANSFORMER>
R712	1-216-083-00	METAL GLAZE 27K	5%	1/10W				
R713	1-216-049-91	METAL GLAZE 1K	5%	1/10W	T001	1-409-467-11	COIL (TRAP 7.8K) (21V4B)	
R714	1-216-055-00	METAL GLAZE 1.8K	5%	1/10W	T301	1-423-414-11	TRANSFORMER, BIAS OSCILLATION	
R715	1-216-057-00	METAL GLAZE 2.2K	5%	1/10W				
R716	1-216-033-00	METAL GLAZE 220	5%	1/10W				<VARIABLE RESISTOR>
R717	1-216-295-91	CONDUCTOR, CHIP						
R718	1-216-089-91	METAL GLAZE 47K	5%	1/10W	VR001	1-241-394-11	RES, ADJ, METAL GLAZE 4.7K (21V4B)	
R719	1-216-051-00	METAL GLAZE 1.2K	5%	1/10W	VR002	1-241-397-11	RES, ADJ, METAL GLAZE 47K (21V4B)	

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REF. NO.	PART NO.	DESCRIPTION	REMARK
		<CRYSTAL>	
X501	1-579-070-41	VIBRATOR, CRYSTAL	
X652	1-579-608-11	VIBRATOR, CRYSTAL	

KV-21V4A/B/D/E/U

RM-C801/RM-C803/RM-C801/RM-C801/RM-C802

9-965-127-01

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